National SAFETY NEWS

JANUARY 1956

UNIVERSITY MICROFILMS
EUGENE B.POWER
313 N.FIRST ST.
ANN ARBOR,MICH.
-IN COMP DE

IN THIS ISSUE

Safety-Minded Genius
The New Approach to Machine Guarding
Measuring Accident Experience

FOR DUSTS

M-S-A DUSTFOE 66

Improved for better, more comfortable face fit, and reduced breathing resistance. More sponge stock, plus special contour design gives an automatic fit, that assures an airtight seal without adjustment. Larger exhalation valves improve breathing. Valves are spring-retained to avoid variations in breathing ease, and to prevent accidental removal. Filters dusts and mists.* Write for detailed bulletin.

M-S-A COMFO FILTER

New facepiece compound never feels clammy, won't harden, or "set" in distorted shapes; provides greater wearing comfort, durability. Three interchangeable filters—(1) dusts not significantly more toxic than lead;* (2) dusts, mists, metal fumes;* (3) toxic aerosols and *extremely* fine particles. The new Comfo Filter Respirators are smaller, lighter than previous models. Write for detailed bulletin.

Here's the NEW—IMPROVED
M-S-A RESPIRATOR LINE

FOR CHEMICALS AND VAPORS

M-S-A GASFOE

Better looking, light weight, compact, comfortable. Add to these features the four different single cartridges that are interchangeable and easily replaceable and you see why the new Gasfoe is tops. Cartridges available—GMA* for organic vapors; GMC for acid gases and/or organic vapors; GMD for ammonia concentrations; MERSORB for metallic mercury vapors. Write for detailed bulletin.

M-S-A COMFO CARTRIDGE

Redesigned for greater comfort, protection. New facepiece keeps its shape, does not harden or set, resists facial oils. The new cartridge design extends breathing protection life, and reduces resistance. Four interchangeable cartridges protect against organic vapors,* acid gases, ammonia, or metallic mercury vapors. Filters available for dust protection.* Write for detailed bulletin.

**U.S. Bureau of Mines Approved*

MSA
SAFETY EQUIPMENT HEADQUARTERS

Call the M-S-A man on your every safety problem . . . his job is to help you

MINE SAFETY APPLIANCES COMPANY
201 North Braddock Avenue, Pittsburgh 8, Pa.
At your Service: 76 Branch Offices in the United States

MINE SAFETY APPLIANCES CO. OF CANADA, LTD.
Toronto, Montreal, Calgary, Edmonton, Winnipeg, Vancouver, Sydney, N.S.
Representatives in Principal Cities in Mexico, Central and South America
Cable Address: "MINSAF" Pittsburgh

LOOK TO WILLSON
for another new development in head protection!

NOW—SUPER-TOUGH PHENOLIC SAFETY HATS AND CAPS

FROM THE WILLSON RESEARCH CENTER now comes the "Phenolic" line of scientifically designed safety headgear that meets all specifications with ease!

In this Super-Tough line are safety developments so outstanding that you'll find it offers unequalled value. For instance, the famed "geodetic suspension" and the unique pneumatic headband are obtainable in both adjustable *lace-in* and *snap-in* types of hats and caps.

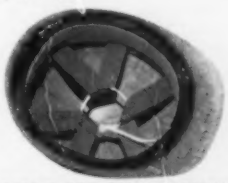
Ask your Willson distributor to demonstrate the heavy duty Phenolic line that combines comfort and maximum head protection. Or write for latest "Super-Tough" bulletin describing them in detail.

Strongest Made!

See how it's built up from 24 individual die cut pieces into a sturdy Phenolic pattern that withstands repeated 80-foot-pound drop ball tests without even fracturing!

LACE-IN SUSPENSION

Both hats and caps are available with convenient lace-in suspension feature. Easily adjusted for snug comfort to any head size.



SNAP-IN SUSPENSION

Handy Center-Tie snap-in type suspension is also obtainable in Super-Tough hats and caps. *Willson's exclusive patented "Geodetic Suspension" and Pneumatic Headband can be had in any style!*

WILLSON
205 Washington Street,

Over 300 Safety products carry this famous trademark

PRODUCTS, INC.
Reading, Pennsylvania

National
SAFETY NEWS
Published monthly by National Safety Council

Vol. 73, No. 1 JANUARY, 1956

THE COVER: A Gyropilot installed in the cockpit of a large airliner. Similar automatic pilots fly many types of aircraft ranging from blimps and helicopters to jets. Photo by Sperry Gyroscope Company.

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Stock No. 1514

They'll never crack, harden or curl up from wetting!

Stock No. 1327

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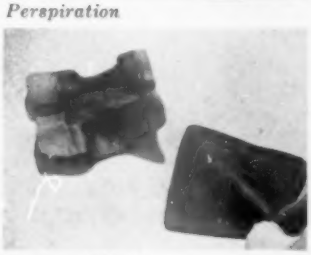
no more wet feet

in new SYLFLEX tanned leather safety shoes

Perspiration



Barnyard Acids

Ice Removal Salts

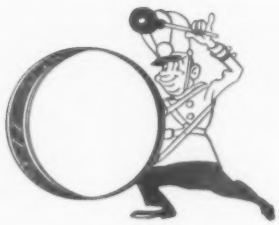
Industrial Acids

The secret is silicone-tannage. The miracle silicone molecules surround every fiber in the leather with a permanently water-repellent film. Water beads up on the surface as it would on wax – can't soak in. And it lasts as long as the shoe. Yet these Sylflex-tanned leathers still "breathe" as leather shoes should. They won't make feet perspire and "burn" as airtight rubber will.

In damp-floor operations – indoor-outdoor jobs – wet muck or field work, no leather shoes ever built will stand up as long, yet stay as soft and pliable as these new Sylflex-tanned LEHIGHS. Of course the famous Lockrim steel toe box is built into every pair.

LEHIGH
SAFETY SHOE COMPANY
EMMAUS, PA.

SHOWMANSHIP IN SAFETY

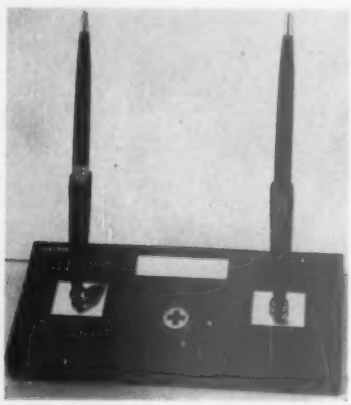


By Jim Saul

Editor, Industrial Department, NSC

Several months ago the National Safety Council published a 72-page booket, *Showmanship in Safety*, describing about 160 safety promotional ideas. The attention this publication drew prompted us to put safety showmanship on a monthly basis. Jim Saul, who wrote the booklet, is our unofficial "Vice-President for Showmanship."

He invites you to tell us about your safety publicity stunts – in words and pictures. Don't hesitate to send an idea that isn't "new." If you have a copy of *Showmanship in Safety*, you can lift a publicity idea and give it your own twist. If it's the first time you have tried it, it's new.—*The Editors*.



Got a Prize-Winning Idea?

How would you like to win a Ronson lighter like the one illustrated here? Just send us a description—with pictures—of the way you pep up employee interest in safety. If you use contests, stunts, or incentives of any kind to spark your safety program, we want to know about it. The best idea sent in each month will win a Ronson Adonis lighter.

If you're already well fixed for lights, try anyway. The designers built that trim, graceful look into this model to appeal to both men and women. Maybe your next gift problem is already solved!

At the end of the year, we will select a "Safety Showman of the Year" from the winners of each month's contest. The best submission of the year will win a Parker Magnetix desk set with two "51" pens.

Send your idea to Jim Saul, Editor, Showmanship in Safety, NATIONAL SAFETY NEWS, 425 N. Michigan Ave., Chicago 11.

The Wheel of Fortune And/or Misfortune

"Give me your attention, folks, here's a game that's good for life. Everybody wins—nobody loses!"

No, we're not on a carnival midway—we're at the National Safety Congress!

Ed Prange of Bendix Products, South Bend, Ind., program chairman of the Automotive and Machine Shop Section, opened the section's panel discussion on accident case histories with the above "pitch."

The house lights dimmed, a fanfare rent the air and a spotlight played on the beautiful girl spinning the wheel of chance. As the house lights came on, the audience discovered the panel and moderator in place at the table garbed as carnival pitchmen.

After the "barker" explained

—To page 135

Left to right: Norma Newman, NSC staff; Ollie Pickel, Wagner Electric; Ralph Coe, Goodman Manufacturing; "Barker" Con Bacon, G.M. Technical Center; Fred Yelton, Delco-Remy; and John Kane, Ternstedt.

Employees at Ralston Purina Company's Nashville plant prepare for the daily dart-throwing which will bring a silver dollar to some lucky worker. The "spin for safety" stimulated interest and helped reduce accidents during the one-month campaign.

COPPUS "BLUE RIBBON" VENTILATORS

Used in wide variety of applications throughout industry

Improve workers' safety . . . health . . . comfort . . . efficiency

VANO DESIGN "A" VENTILATOR is used here during repairs to a chemical still. This type ventilator is used to ventilate tanks, tank cars drums, vats, underground cable manholes, pipe galleries, airplane wing compartments, fuselages and other confined places. Uses 8" diameter flexible canvas tubing ("Ventube").

VANO DESIGN "B" VENTILATOR here discharges welding fumes from double-bottom compartment in naval vessel under construction. Large volume of air handled quickly expels fumes and results in good ventilation. Vano Design "B" can pass through opening only 14" in diameter. Uses 8" diameter flexible canvas tubing ("Ventube").

VANO DESIGN "C" VENTILATOR here withdraws fumes from a reactor kettle. This ventilator can be furnished with 8" suction inlet for 8" non-collapsible suction tubing — or multiple inlet nozzles for 5", 4", and 3" suction hose. The discharge may be connected to 8" "Ventube." Capacities furnished on request.

NO. 2 AEROPLANE HEAT KILLER here directs cool, fresh air on worker in drop forge plant. Heat killers restore workers' efficiency by providing extra ventilation in the hot months, or on any job where workers are continually or periodically required to work in excessive heat. Available in two types, three sizes in each.

VENTAIR DESIGN TE-4 VENTILATOR Gasoline Engine Driven, here delivers air into underground manhole. These ventilators provide fresh air to men in confined places, promoting safety, comfort, and increasing efficiency. Ideal where no electric current is available. Delivers 1700 CFM of fresh air. Uses 8" diameter flexible canvas tubing ("Ventube").

PORTAIR NO. 4 BLOWER EXHAUSTER exhausts fumes resulting from soldering, welding, tank coating, is also used in ventilating small tanks. It is designed to permit attachment of 4" flexible metal hose. Capacity: 425 CFM free air.

ATTACH THIS COUPON TO YOUR COMPANY LETTERHEAD

COPPUS ENGINEERING CORPORATION, 121 PARK AVENUE, WORCESTER 2, MASS. Sales offices in Thomas' Register. Other "Blue Ribbon" Products in Chemical Engineering Catalog, Refinery Catalog, Best's Safety Directory and Mining Catalogs.

Please send me information on supplying fresh air to men working:

- ☐ in tanks, tank cars, drums, etc.
- ☐ in underground cable manholes
- ☐ in aeroplane fusilages, wings, etc.
- ☐ on coke ovens
- ☐ on steam-heated rubber processes
- ☐ on boiler repair jobs

COOLING:

- ☐ motors, generators, switchboards
- ☐ wires and sheets
- ☐ general man cooling
- ☐ around cracking stills
- ☐ exhausting welding fumes
- ☐ stirring up stagnant air wherever men are working or material is drying
- ☐ drying of walls, sheets, etc., after treated with coating material

Name .....

Company .....

Address .....

City ..... Zone .... State .....

Write here any special ventilating problem you may have { _____ _____

THE SAFETY VALVE

Nothing human is alien to me
—TERENCE

Boys and Guns

SINCE THE DAYS when flintlock and powder horn were standard equipment in American households, shooting with a weapon of some kind has been a popular sport. Kids too young for a .22 have trained on air rifles.

A tin can on a fence post was a common target. When we tired of that, we tried our sharpshooting on street lights, cats and dogs, or the seat of somebody's pants (that was the spot that took the punishment for our misdeeds).

The air rifle, if you want to be technical, isn't a rifle and it isn't actuated by air. It ejects a BB shot at a relatively low muzzle velocity and its effective range is short. But the shot has enough force to ruin an eye, so the BB gun has a bad name in some circles.

Target practice, however, can be a wholesome sport. The Boy Scouts include marksmanship among their merit badges. A boy may earn one with a spring-type rifle.

A prominent producer of air rifles, the Daisy Manufacturing Company, is trying to promote their sane use. The company has issued literature on how to organize air rifle clubs, and the National Rifle Association donates prizes for marksmanship.

Out in Omaha, the local safety council got disturbed at the number of BB gun incidents involving persons and property. Each month, some 90 of these cases were being reported to the police. The council got busy and with the help of other agencies organized clubs and competitions throughout the city. The number of "incidents" has dropped to about 12 a month.

The air rifle is regarded as an excellent medium for teaching youngsters how to handle a gun and demonstrate their prowess. This training prepares them for using a .22, a .30-.30 or an elephant gun.

Compared with some of the weapons used by kids 50 years ago, the air rifle is a parlor toy. A forked stick and some rubber tubing could be made into quite a lethal catapult. Home-made bows and arrows, though lacking the power and accuracy of Robin Hood's long bow, could shoot a sharp pointed arrow with considerable force. And throwing stones, one of the most dangerous of youthful sports, didn't need any equipment.

We used to get into a lot of mischief for lack of better outlets for youthful deviltry. There's a lot to be said for this air rifle project.

The Great Honus

THOSE OF US who followed baseball in the earlier years of the century felt a nostalgic pang at the passing of John Peter (Honus) Wagner, one of the survivors of the legendary age of sports and one of the game's all-time greats. His record for hitting and fielding is surpassed only by Ty Cobb's, and among old-time fans you can always get an argument as to which was the greater.

Among my souvenirs is a baseball autographed by Honus. During the 1930 National Safety Congress in Pittsburgh I dropped in at his sporting goods store and bought a ball which he signed. He loved to talk about the past and related with justifiable pride that his batting average against the great Matty was .333. I have forgotten the speeches I heard at the Congress but I'll always remember that visit with Honus.

I suspect that quite a few of the items bought in his store never got into play.

In This Issue

THE NAME of Elmer A. Sperry is most often associated with an intriguing toy which is vaguely believed to have some practical applications on a larger scale. But the gyroscope was only one of the many products of Sperry's genius. Of the 400 patents granted during his busy career many were concerned directly or indirectly with safety. (Page 18)

* * *

The trouble with too much machine guarding is that it doesn't go beyond enclosing the moving parts, which isn't enough in this age of automation. It should consider the man and his whole environment as well as the machine. (Page 22)

* * *

Last summer our fictional safety engineer left a secure, comfortable job to take one in a company which was being reorganized and whose accident record was notorious. Management gave him a blank check, with the implied warning to get results or else. Now he's reporting to the boss on his half-year's work. The record has been creditable but not spectacular. (Page 26)

* * *

Conservation of hearing continues to be one of the hottest subjects for industry. Measurement of hearing is one of the first and most important steps in an effective and comprehensive program. (Page 30)

* * *

This month we welcome five new departments to our pages: *Showmanship in Safety* (page 4), *Accident Post-Mortems* (page 12), *Sammy Safety's Notebook* (page 21), *Inside NSC* (page 54) and *Consultation Corner* (page 58).

Carman Fish

New Iron Age Steel Toe Insulated Safety Boots

Warm in winter, cool in summer
dry and safe always!

THIS TAG TELLS THE STORY

No. 677

No. 678 (not illustrated) same in regular 6" work shoe height.

Looking for a sturdy leather 8" boot with a steel toe? Want one that's insulated against cold and heat? Need one that sheds water like a duck's back; resists oils, acids, alkalis; that's softly supple, yet wears like iron? There's just one that meets these specifications. It's the new *Iron Age Insulated Safety Boot.*

The big feature is the upper leather. It's Parka Brown Sylflex, a patented tannage using Dow silicones. This process keeps moisture out, permits the leather to breathe; allows the fibres to remain forever soft and flexible.

Be among the first to start earning the benefits your people can gain by wearing this *exclusive* Iron Age value. Be prepared for bad weather ahead. Get your stock order in today.

OTHER FEATURES

- Waterproofed inseams and welting
- Double counter and backstay
- Dacron stitched throughout
- Seiberling Oil-Pruf sole, heel
- Full leather middle sole
- Rawhide laces

Iron Age

Iron Age
DIVISION

H. CHILDS & CO., INC. 1205 Madison Ave. Pittsburgh 12, Pa.

THE ACCIDENT BAROMETER

Prepared by the Statistics Division, National Safety Council

THE DEATH TOTAL for September was approximately 7,900, an increase of 10 per cent over September, 1954. Aside from no change in work deaths, all classes showed increases over 1954.

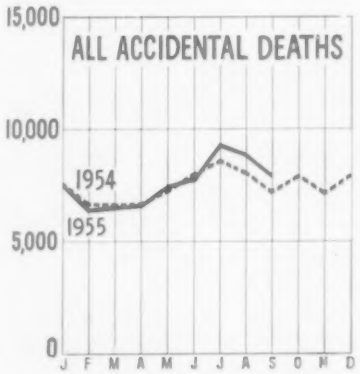
The nine-month death total was 67,700, or 1 per cent above the 1954 comparable figure of 66,700. There were increases in deaths from motor-vehicle, work and public non-motor-vehicle accidents but a decrease in home accident fatalities.

Motor-Vehicle Deaths

The motor-vehicle death total for September was 3,530, an increase of 12 per cent over 1954. Compared to 1953, it was an increase of 5 per cent.

Deaths for nine months totalled approximately 27,060, or 6 per cent above 25,580 in 1954. The nine-month death rate per 100,000,000 vehicle miles was 6.0, a reduction of 2 per cent from the 1954 comparable rate of 6.1.

Of the 45 states reporting for nine months, 11 had fewer deaths than in 1954, 1 had the same number and 33 had more deaths. Reporting cities with populations of more than 10,000 had an increase of 11 per cent for September and 5 per cent for the nine-month period.



	1955	1954	Change
September	7,900	7,200	+10%
Nine Months	67,700	66,700	+ 1%

Regional changes from 1954 in the nine-month death totals were:

North Atlantic	+ 8%
South Atlantic	+ 8%
North Central	+ 4%
South Central	+ 6%
Mountain	— 1%
Pacific	+ 9%

Work Accidents

Deaths from work accidents numbered about the same as in September, 1954—1,300. The total for nine months was 10,500, an increase of 100 over 1954.

The September frequency rate per million man-hours for plants in community council contests was 4.95, a decrease of 28 per cent from 1954. The September rate for plants in 18 National Safety Council sectional contests was 5.66, a reduction of 1 per cent. The nine-month rate in community council contests was 6.91, down 12 per cent; in sectional contests the rate was 5.77, up 2 per cent.

Public Deaths

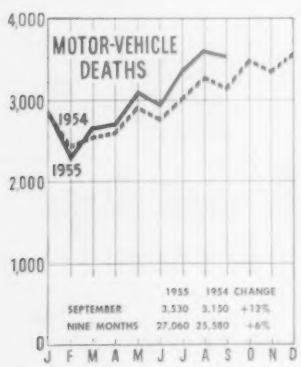
Deaths in September from public non-motor-vehicle accidents numbered approximately 1,300, or 100 more than in 1954.

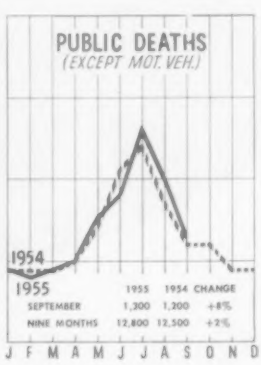
The nine-month death total was 12,800, an increase of 2 per cent over 1954. There were increases in fatal burns, drownings and transportation accidents and decreases in falls and firearms accidents. Aside from a small decrease in deaths of persons 15 to 24 years of age, all age groups showed increases with the largest change recorded for children under 5 years old.

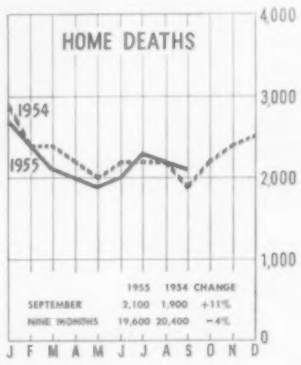
Home Deaths

The total for home deaths in September was 2,100, or 200 more than occurred in 1954.

Deaths during the nine months numbered about 19,600, a reduction of 4 per cent from 1954. There was a sizable decrease in deaths from mechanical suffocation, moderate reductions in poisonings and firearms accidents and small decreases in burns and falls. Most of the reduction occurred among children under 5 and young people 15 to 24 years old but deaths of children 5 to 14 and persons 25 to 44 and 65 years and over also were fewer.







AMERICA'S LEADING EYE-AID FOR SAFETY

Magic Lens Tissue SILICONE TREATED

SCIENCE'S ANSWER TO GRIT, FOG, AND GRIME

Magic HEAVY-DUTY STATION

Good management takes full advantage of this offer...

Each Magic Lens Tissue (Silicone Treated) sheet is over 50% larger than usual, and has twice the tearing strength. Yet it costs less. $8.40 per carton of 6 refills. Loaded with sparkle-power, it polishes—and protects—as it cleans crystal clear. Compact Self-Mounting Dispenser only $2.50. No drilling. No screws. Just stick it to the wall.

Magic Heavy-Duty Cleaning Station is for heavy-grit areas or where anti-fog protection is needed. Magic Lens Cleaning & Anti-Fogging Fluid is pressure-packed. 1,400 applications per can. One Magic can equals 4 old-fashioned bottles. That's the first saving. No pump. Nothing to refill. Only $12.50 per carton of twelve 12 oz. cans. Indestructible Dispenser locks can in place. Releases each sheet of tissue 1 by 1, not in bunches; greatly reducing waste. This superior cabinet costs only $5.95. Magic Heavy-Duty Paper, not silicone treated, is our superb wet-strength tissue. No scratching on plastic, and no lint. Carton contains 18 giant refills, of 760 sheets each, at $11.60 per carton. Again, you save money.

Ask to exchange Magic for your old cleaning stations FREE, or order anew—now! Wire or write us or your Safety Jobber today!

"Replace all our other stations with Magic FREE"

SAYS THE GOOD MANAGER

Magic T. M. REG. U. S. PAT. OFF. Cleaning Stations

The Silicone Paper Company of America Inc. General Offices: 75 E. 45th St., New York 17, N. Y.

WIRE FROM WASHINGTON

By Harry N. Rosenfield
Washington Counsel, National Safety Council

A QUICKENING of the pace of legislative proposals was noted in the period immediately prior to the opening of the new Congressional session in early January 1956.

Industrial Safety. The Senate Committee on Banking and Currency held hearings on proposals by Senator Lehman for a $12 billion Federal disaster insurance program which would protect against smog, among other disasters as defined. The Administration indicated at the hearings that it would present its proposal to Congress when the legislature reconvenes. Senator Payne also announced that he would introduce a bill to deal with this general problem.

The Interstate Commerce Commission acted to require safeguards against failures in truck brakes which caused runaway truck accidents. Its proposed safety regulation would require a braking system that limits failure of any part of the system to a single axle, thereby leaving other brakes in operative order and under the driver's control. The rules would apply to truck-semi-trailers and other combination vehicles in interstate commerce. If adopted, the rule would apply to all new combination vehicles manufactured after September 30, 1956, and to all combination vehicles in use after March 31, 1957. Comments were invited from interested parties.

The Interstate Commerce Commission also amended its rules which govern the monthly reports of railway accidents, subject to the opportunity of interested parties to file comments and objections.

The Atomic Energy Commission announced the establishment of a 12-member Advisory Committee of State Officials, to consult with AEC on regulations concerning health and safety aspects of private atomic energy activities. The committee members represent state agencies such as health, labor, public utility and legal departments. This action was the outcome of a meeting held last summer in Washington (See "Wire," August 1955). Administratively, AEC added to its technical staff for the development of standards, codes, and guides for public health and safety in the design, operation, and location of facilities licensed and operated by the commission.

The Bureau of Mines adopted, without change, its proposed regulations prescribing requirements governing investigations leading to acceptability of fire-resistant conveyor belts, and issued notice of proposals concerning amendment of regulations relating to self-contained breathing apparatus.

Highways. Preliminary estimates of nationwide motor-vehicle travel for 1955, according to the Bureau of Public Roads, indicate an increase of 4.6 per cent over 1954.

The Defense Department issued special instructions for drivers of motor vehicles transporting explosives and certain other dangerous articles.

At the request of the American Automobile Association, the Federal Communications Commission announced that it proposed to amend its regulations so as to authorize associations of owners of private automobiles to make limited use of radio for the purpose of reporting on traffic conditions both from the air and from vehicles on the ground.

The purpose of the request was to improve the safety of vehicular traffic and avoid unnecessary arterial congestion on holidays, weekends and other occasions of abnormal vehicular traffic movement. The FCC invited comments from interested parties and especially solicited the views of police departments with reference to the cooperation of such associations of private automobile owners with police departments.

Aviation Safety. The Civil Aeronautics Board has announced two proposed changes in its regulations, relating in one way or another to flight safety. In one, the CAB proposed to require all airlines to install flight recording devices on scheduled air carriers. According to the proponents of the change, the recorder would provide useful information with respect to accident prevention and accident investigation. The other proposed change in CAB's regulations would amend the flight time limitations so as to subject flight navigators to the same daily flight time limitations as are specified for other flight crew members. In both instances, comments of interested parties are invited.

First formal steps toward airworthiness certification of an American jet transport have just taken place, to assure the safety of passengers flying in these new-type planes. The Civil Aeronautics Board, which issues safety regulations, has not as yet formulated complete regulations to meet the specific requirements of jet transports. However, the Administrator of Civil Aeronautics is empowered to require whatever is necessary to insure "an equivalent level of safety," as compared with conventional aircraft.

The Federal Communications Commission rescinded its decision to permit certain TV towers in the

—To page 117

Workmen in Bare Feet!

ridiculous yes, . . . but shoes without safety steel toes can be just as risky

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actual photograph of new improved WINGUARD toe

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ACCIDENT POST-MORTEMS

What caused that accident? What would have prevented it?

A review of cases by Franklin G. Pater

Senior Engineer, Industrial Department, NSC

WITH this issue we are starting a new feature, "Accident Post-Mortems." There is a lesson to be learned from every accident —even those in which nobody gets hurt. In presenting these cases an attempt is made to determine the basic causes and discuss corrective measures.

We need your help. Our file of accident cases is limited. You can help us by sending details of accidents that have occurred in your organization. Descriptions should include:

1. Complete description of accident.
2. All circumstances—mechanical and environmental—surrounding the accident.
3. Photos and/or drawings, if available.
4. Findings of the investigation.
5. Conclusions.
6. Action taken.

Almost an Injury

While the employee was reaching for something on the top shelf of his locker, the entire section of five steel lockers fell forward, knocking him to the floor. Though his left leg was pinned between the fallen lockers and a bench, he was not injured.

The center section of the lockers are back-to-back and rest on a 2 x 6 wooden frame to keep them off the floor for sanitary reasons. According to the investigating committee, this set of lockers would have had to be off base (the 2 x 6 wooden frames) considerably to cause them to fall when the locker door was opened.

A committee inspected the locker rooms and recommended the following precautions:

1. All lockers should be tied together by bolts through the frame.
2. Each section should be tied together by bolts through the frame.
3. Where lockers are set up off the floor on a platform, a "curbing" should be installed at the front of the base to prevent the lockers from moving off the base.
4. If lockers are located with backs to the wall they should be bolted to the wall.

These same precautions should be taken for office equipment such as filing cabinets, book shelves, and supply cases. Where it is not practical to tie them together at the top they should be anchored to the wall or to the floor.

"They oughta do something about Chester. That's the second time this week he's slipped on some oil I've spilled."

Scratch Causes Infection

The employee was using an eight-inch pipe wrench to adjust a waterline pipe on a pump in the stock washroom when he pushed downward on the pipe and his hand hit a set screw. One edge of the four-cornered screw cut through his glove and scratched his hand. He reported immediately to the first-aid room and the nurse put sulpha powder on the cut.

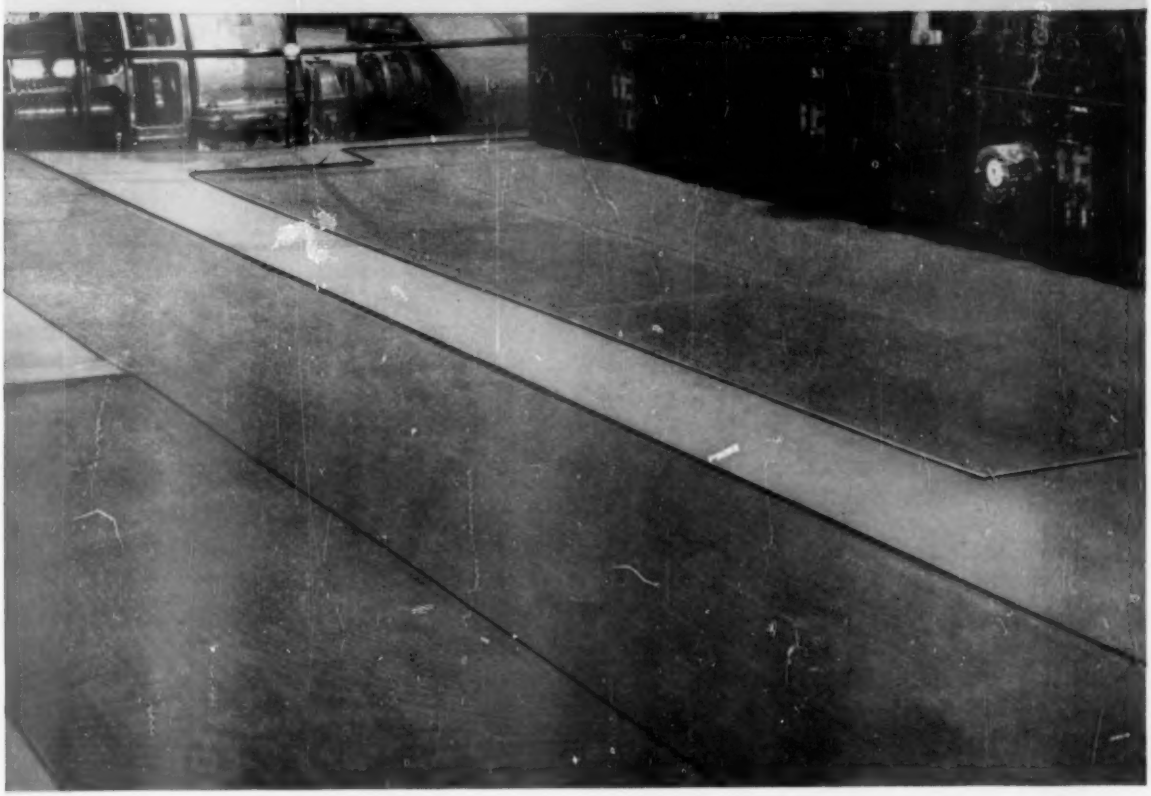
During the night his hand began to swell and turn red. He came back to first aid the next morning and the nurse sent him to the doctor. The physician later diagnosed the case as blood poisoning.

The investigating committee determined the cause of the accident as not surveying the situation before adjusting the pipe and not watching work closely enough. (Evidently the committee decided it was a work practice that caused the accident.)

The committee recommended that before starting a downward motion or pushing with a pipe wrench or any hand tool workers should be sure there is no object or obstruction that could possibly strike or cut the hand when the

—To page 133

Insulate electrical apparatus with U. S. Switchboard Matting



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U. S. E-9838 Switchboard Matting has been electrically tested in accordance with A.S.T.M. Spec. (D178-24), spot-tested for 40,000 volts dielectrical strength or better, proof-tested at 15,000 volts over the entire area and recommended for use up to 3,000 working voltage.

In addition, U. S. E-9838 Switchboard Matting is stenciled on the back—**every three (3) feet as follows:** "Electrically tested in accordance with A.S.T.M. (D178-24)"

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A Statement of Policy

NATIONAL SAFETY NEWS

An Official Organ of the National Safety Council

IN MAY 1955 a NATIONAL SAFETY NEWS Management Committee was created by Gen. George C. Stewart, executive vice-president. This committee, composed of representatives of various Council divisions whose work relates closely to the production of the magazine, was assigned the responsibility of continually appraising the content and format of the NEWS and of recommending improvements and new features to increase the value of the magazine to both readers and advertisers.

One of the first actions of the committee was to formulate and submit to management an expanded and more complete policy statement setting forth the objectives, functions, and governing principles so that clear and definite goals and purposes can guide the month-to-month production of the NEWS.

Because this policy statement is of interest to every reader and advertiser it is reprinted in its entirety below. Other measures developed by the committee to make the NATIONAL SAFETY NEWS a more valuable magazine to everyone in the industrial safety field will be reported in forthcoming issues.

Objective

To encourage, promote and aid the prevention of accidents and elimination of health hazards to people employed by industrial and business establishments, hospitals, and public agencies, by fostering the use of modern accident prevention techniques and equipment.

Functions

1. To serve as the official organ of the National Safety Council in the employee safety area, and in this capacity to promote a sense of unity and cooperation among Council members, and the volunteers who participate in Council activities and programs.
2. To arouse and maintain the interest of management in accident prevention, and to encourage the adoption and institution of up-to-date safety methods.
3. In cooperation with the Industrial Department and other staff divisions, to collect, interpret, and report on all newsworthy developments in the field of occupational safety.
4. To stimulate individual and group safety activity by giving recognition to achievement in this general field.
5. To provide a dependable and authoritative medium through which the buyer and seller of reliable safety equipment and related products may be brought together.

Operating Principles

1. Because the NATIONAL SAFETY NEWS is a safety magazine, editorial subject matter is generally confined to this broad subject.
2. As an official organ of the National Safety Council, the acknowledged leadership group in the safety movement, a continuing objective shall be to maintain the status of NATIONAL SAFETY NEWS as the most useful and authoritative periodical in the occupational safety field.
3. Since the NATIONAL SAFETY NEWS readers represent all levels of management and degrees of safety knowledge, in various industries and occupations, articles and features collectively are planned to meet the needs and interest of all segments of readership. Preference will be given to material on subjects common to all industries, or to a number of industries.
4. Subject coverage is based on a definite written plan formulated annually by the Industrial Department and the Editorial Division. Major and minor needs are identified and priorities are established accordingly.
5. The use or omission of editorial material is governed by the information requirements of the readers, and is not dependent on the special interests of any group, organization or individual. Editorial contributions are encouraged, and are used whenever possible if in conformance with the objectives of the NEWS and the National Safety Council.
6. The editorial approach is constructive. News and developments considered beneficial to the readership are reported objectively. Criticism of organizations and individuals is avoided.
7. Reported uses of equipment and methods must conform to existing recognized standards and tested principles. However, the Council does not endorse or approve specific commercial products or enterprises.
8. Except for the March and October issues, not less than 60 per cent of the total pages will be devoted to editorial matter.

The NATIONAL SAFETY NEWS Management Committee has the following members: Howard Warzyn (chairman), senior engineer, Industrial Department; H. W. Champlin, director, Advertising Division; Norval Burch, editorial director, Council publications; Carman Fish, editor, NATIONAL SAFETY NEWS; Wendell Blair, senior engineer, Industrial Department; G. O. Lindquist, director, Printing & Purchasing, and Fred Lubet, director, Membership Extension.

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National
SAFETY NEWS

JANUARY 1956

Audience Participation

PERHAPS you've noticed something different about this issue. Of course, there's a new logotype on the front cover. Also, a quarter inch has been added to the height and width of the book, regaining some of the margin we gave up to help win the war a few years ago. And new heads have been designed for the various departments.

These, however, are just superficial changes. More important, some new features have been added with Volume 73, Number 1.

Some new departments will provide more ammunition for your safety campaign. These are: *Showmanship in Safety, Accident Post-Mortems, Sammy Safety's Notebook,* and *Consultation Corner.*

These supplement the service departments, such as *Posters, Industrial Health, Safety Library, Accident Barometer,* and those dealing primarily with news items and announcement of new Council services.

These departments are conducted by staff members of the Council, which means that the NEWS has an impressive list of contributing editors and consultants. In addition to the information presented in these departments, the magazine gains in many other ways through this closer tie-up with the engineers of the Industrial Department.

And where do they get the material for these pages? Why, from you, of course.

This is a rather roundabout way of getting at what we were thinking in the title. The whole safety movement is, in fact, an audience participation show, though not exactly the kind made popular by radio and TV.

Each issue of the NEWS is made possible by the contributed experience of members and friends of the Council. Some articles are sent in directly by the authors. Others are adapted from papers and addresses presented at the National Safety Congress, the Greater New York Safety Conference, regional safety conferences, and association and engineering meetings where safety is included among the operating topics. The NEWS is thus able to make the information available to thousands more readers and multiply the effectiveness of the message.

Safety-Minded Genius

Wherever people travel—on the sea, in the air, and on railroads—the trip is safer, thanks to Dr. Sperry. Less widely known are his contributions to industrial safety

ELMER A. SPERRY
1860-1930

TO ELMER A. SPERRY safety was a basic engineering principle. It was a major objective in nearly every one of his many inventions.

At the time of his death in 1930, Dr. Sperry held nearly 400 patents. Many of them covered regulators, controls, safety fuse wires and blocks, automatic equipment, illumination, directional instruments, and other devices which, directly or indirectly, reduced the element of human hazard.

Dr. Sperry is remembered popularly for his application of gyroscopic principles to a family of instruments which function for safety in transportation by sea and air. Less known but equally helpful are his contributions to safety in other forms of transportation and in operating machinery.

Railroad safety has been advanced immeasurably by Dr. Sperry's rail-flaw detector car. He designed and built the first trolley car which could ascend and descend steep hills safely and satisfactorily. He put four-wheel brakes on a motor vehicle a quarter century before they came into general use.

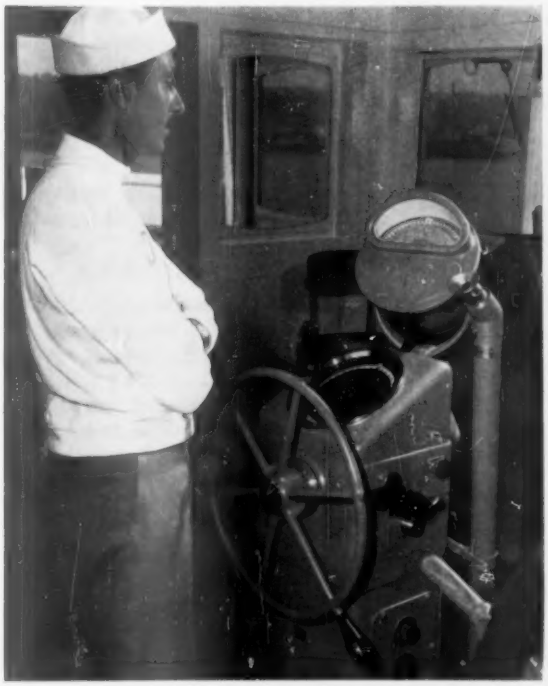
His initial invention, as a boy of 12 at Cortland, N. Y., had a safety objective. It was a locomotive headlight, pivoted to turn with the wheels on curves, and to illuminate the track instead of the countryside. The device never progressed beyond the design stage. Young Sperry showed his drawings only to enginemen. They were impressed, but lacked executive authority to approve development and use.

This inventor scarcely had reached voting age—he was born in 1860—before he was installing electric arc-lighting systems in Chicago and other mid-Western communities. In 1887 he invented an electric coal-mining machine to replace the pickaxe and an electric locomotive to supplant mules for mine transportation.

The mining machine, of the puncher type, soon was replaced by a Sperry-designed continuous chain cutter device. Its principles

The Sperry fleet of detector cars, serving all American railroads, inspects 160,000 miles of track yearly. More than 1,500,000 defective rails have been discovered and replaced since testing began in 1928.

Two-thirds of the world's ocean going ships are equipped with Sperry gyro-compasses similar to this modern unit. The compass is non-magnetic and unaffected by iron and steel.



The world's largest ships, including the "United States" and "Queen Elizabeth," as well as smaller vessels, are steered by the Sperry gyro-pilot. Airliners are also steered by gyro-pilots. (See cover).

Few people thought the automobile would ever replace the horse when Dr. Sperry introduced this electric buggy in 1888. "There will be millions of them; they'll be all over the place; even women will drive them," he said. But the prophetic inventor probably never realized the problem and hazard they would create.

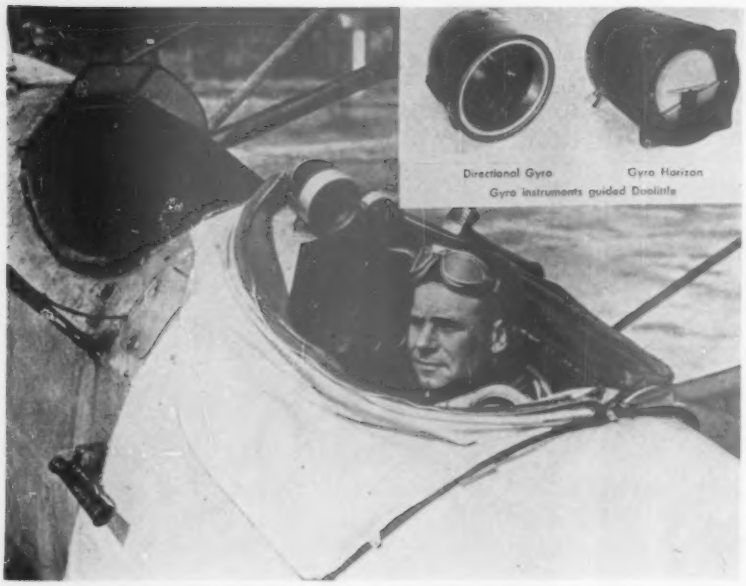
still are employed. The mine locomotive was a natural development because the mining machine, increasing coal production, made coal haulage by mule-drawn cars inadequate. The Sperry locomotive was designed and built to operate on the light, irregular tracks of coal mines. It had two four-wheel swiveling trucks with a single electric motor driving all eight wheels.

This locomotive led to the trolley car. Financiers of street car lines engaged Dr. Sperry to set up shop at Cleveland, Ohio, around 1890 and to apply the drive principles of the locomotive to a trolley car which could climb hills. The idea was to provide street car service for hilly cities, such as Pittsburgh, Pa.

Dr. Sperry built a street car which, driving through all wheels, could climb hills—even 12 per cent test grades. He incorporated also a safe braking system so that the car could descend the hills it climbed. This braking system subsequently was adapted for electric locomotives.

Then came the automobile. This car of the 1890s was the Waverly Electric, equipped with four-wheel brakes. It was received with nonchalance in this country, but the French, more automotively advanced, were eager purchasers. Dr. Sperry developed a storage battery—prototype of the modern automotive batteries—which tripled the car's operating range.

Dr. Sperry first became interested in gyroscopic principles in hopes of using them to stabilize motor vehicles. Their large wheels, solid tires and full-elliptic springs raised the center of gravity to a height which virtually invited upsets.



Aided by the directional gyro and the gyro horizon, James Doolittle made the first blind landing in 1929.

Safety at Sea

The Sperry car had its upsets, too, but before it could be stabilized, the inventor had traveled to Europe. Rough crossings convinced him that stability was more essential to ships. Automobiles appeared then to have a dim if not a dismal future, although Dr. Sperry predicted they would be numerous.

Early stabilization experiments were made with a small boat on Cleveland's Rocky River and then in the Navy's Ship Model Basin at Washington, D. C. Next step was to stabilize the Navy ships *Worden, Henderson* and *Osborne*. A larger installation was in the Japanese airplane carrier *Hosho* and ,a still larger, triple-gyro combination for the Italian Line's *Conte di Savoia*.

Changes in ship construction led temporarily to disuse of stabilizing equipment. The idea has not been forgotten, however, and American ships currently are being fitted with Sperry gyro-fins.

Dr. Sperry's interest turned in 1909 to the development of a gyro compass which would be immune to the effects of the magnetic field created by the growing use of steel construction in ships. Foucault, who gave the gyroscope the name, had visualized this development in 1850, but had no way to keep the gyro spinning. Dr. Sperry used the electric motor both to the keep the rotor spinning and to maintain alignment of gyro element and suspension wire as a ship turned on its course.

Sea trials of the first gyro compass began in 1911, first on the *Princess Anne*, of the Old Dominion Line, and then on the *USS Delaware*. Thereafter gyro compasses were installed on vessels of the American, British, French, Italian, and Russian navies.

The device later was modified so that it would control a steering engine and automatically hold a ship on any predetermined course. Thus was born the "Metal Mike," or robot helmsman, officially called the gyropilot. It is more sensitive to deviations from course than any sailor and is untroubled by human limitations arising from fatigue and exposure.

Safety in the Air

Dr. Sperry had conceived, about 1910, the idea of applying the gyro stabilizer to aircraft for operational safety. With a son, Lawrence, he developed an aircraft gyro unit which held itself stabilized. Through electrical contacts, it actuated the clutches of servo-mechanisms controlling the ailerons and elevators.

Lawrence entered a gyro-equipped Curtiss flying boat in the June 1914 Aero Club of France 50,000-franc international competition for a safe plane. He won over more than 50 competitors by flying before the judges' stand while seated on the cockpit coaming with his hands raised in the air and his mechanic riding a wing.

World War I and development of aerial dog-fights suppressed the demand for stabilized aircraft, however, and the inventors turned their attention to other

—*To page 125*

In the days of the brown derby, Sperry's electric railway cars were making mass transportation history in Cleveland. They won performance prizes at the Chicago World's Fair in 1893.

INTRODUCING

Sammy Safety's Notebook

By Arthur S. Kelly

Senior Engineer, Industrial Department, NSC

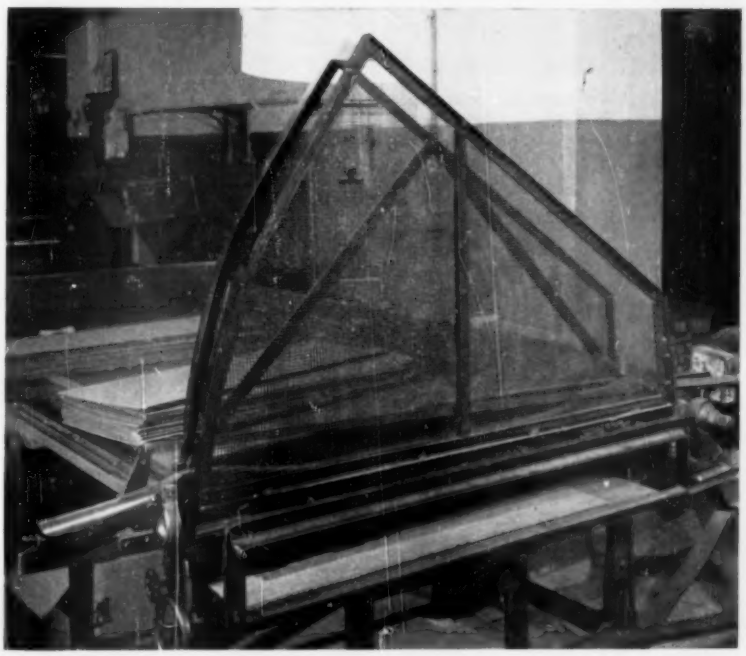
These non-commercial safety devices were developed by members of the National Safety Council. They are presented here for your use

Each month this department will describe and illustrate a variety of practical devices designed to make the job safer. The value of this feature will depend on your participation. If you have developed some method or gadget that has proved helpful, your fellow members will also find it useful.

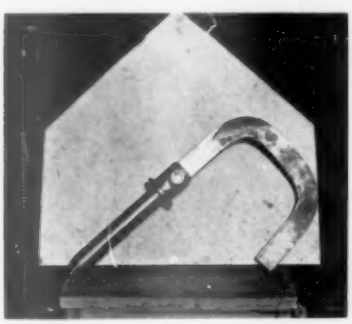
A monthly award will be given for the device or idea selected as the best for the month.

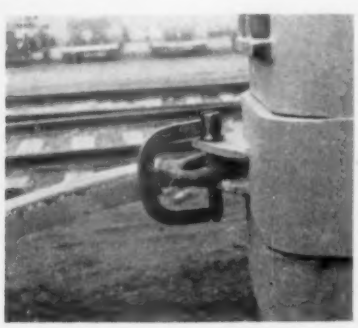
A semi-annual award will also be given for the best idea submitted for each six-month period of the calendar year. More about these awards will appear in the February issue.

Best photographs for reproduction are 8 x 10 glossy prints with good contrast. However, good, clear snapshots are often satisfactory, particularly for small objects. Line drawings and sketches should be of ample size and cleanly drawn to permit reduction. Large rolled photostats or blueprints with a great deal of detail seldom make satisfactory cuts in the space available.



Screen Guard on Shear
This screen guard on a large trimmer (Marshall shear) developed by the Eastman Kodak Company answers a serious problem in many industrial and shop operations. Note latch to hold knife down.





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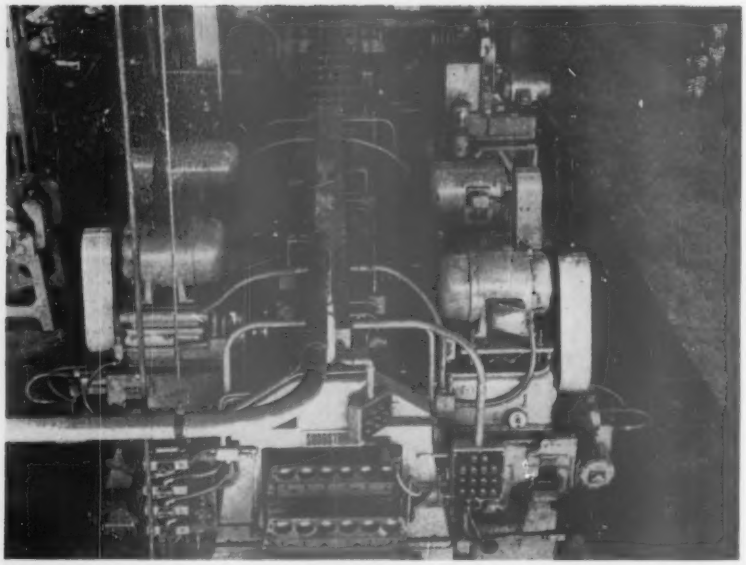
Coupling for Trailers
Many plants have the problem which has been solved as illustrated in the two pictures (left). This safety coupling is much safer than the straight pin or bolt, too often used to hitch trailers or the like to powered vehicles.



With the automatic production line, the worker is not required to feed or operate the machine. Generally a conveyor is the basic unit around which production equipment is built. Above photo shows machining of automobile engine blocks where conveyor moves and indexes engine blocks to machines for various operations. Only two men are required to oversee operation of line.

Gravity slide and spring pad ejection on punch press. After part is processed, spring pads bring piece to top surface of die and falls by gravity from incline die. If press is not inclined, compressed air can be used to eject part.

The New Approach to MACHINE GUARDING

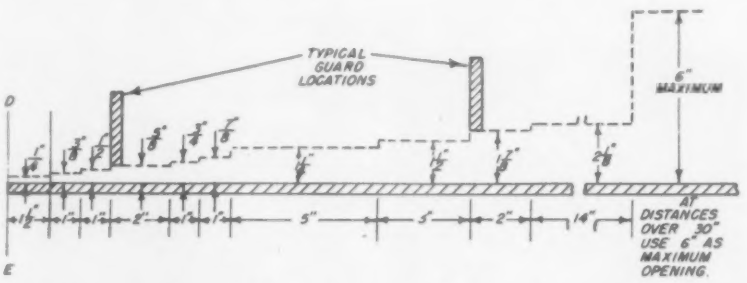
Safeguarding is more than enclosing moving parts. It coordinates men and machines into a safe, efficient operating team

By GEORGE W. BOWEN

UNTIL NOW, efforts at machine guarding have been directed at the transmission or point of operation exposures. Now we need to change our basic thinking. Using modern guarding developments, we should consider over-all accident exposure of operating the machine.

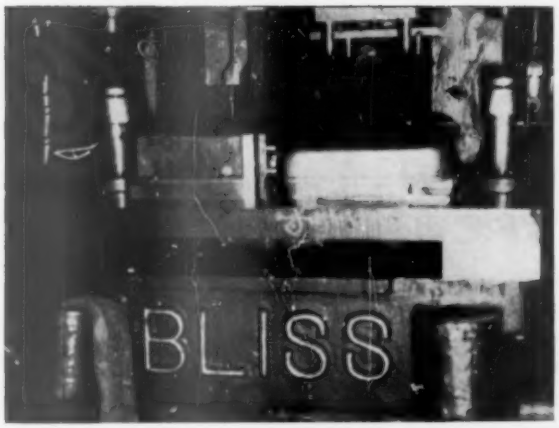
Basically what we are evaluating are the questions:

- Is the man matched to this ever-changing machine?
- Are machine controls of proper shape, conveniently located?
- Is the operator exposed to excessive noise, fatigue?

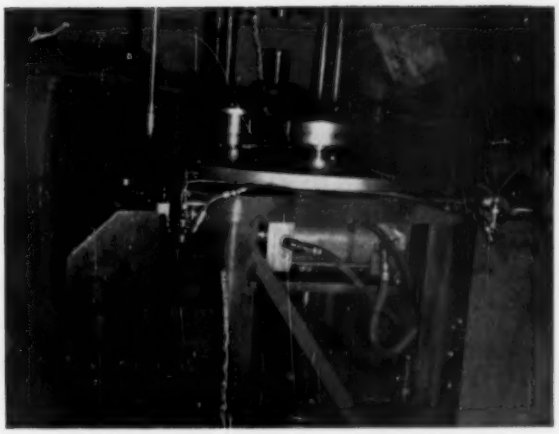


How big an opening is permissible in a barrier guard? To keep hands outside the danger zone, recommended sizes range from 1/4-in. at 1 1/2 in. to a 6 in. maximum at distances of 30 in. or more.

GEORGE W. BOWEN is Industrial Engineer, New York Division, Liberty Mutual Insurance Company, New York. This article was adapted from an address at the 25th Annual Safety Convention, Greater New York Safety Council, April 11-15, 1955.



This limit switch installation requires proper nesting of shells before press can be activated. When shell is nested properly, limit switches are activated, operating a solenoid air valve which permits worker to operate pneumatic hand trips. This prevents operator nesting piece manually during down travel of ram. Damage to two piercing dies is also prevented. (Courtesy L. Spielberg & Sons)



Pneumatic hand trips activate quick work trimmer. Previously trimmer was operated by foot pedal which, through air cylinder, brought trimming head in contact with shell mounted on mandrel. Following an accident, foot pedal was removed and two-hand trips installed. Controls are designed so that trimming head moves away from mandrel if operator removes hands from trips. (Courtesy L. Spielberg & Sons)

- Is there a material-handling hazard?
- Are limitations of manual effort, lifting, pushing, pulling recognized?
- Are existing or proposed guard designs based on physiological factors, human body dimensions?

To match man to the machine we can use such important factors as pre-placement physical examinations, aptitude tests, and indoctrination in training programs. However, as engineers we should deal primarily with the related accident exposures when matching man to the machine. All physical or designed features of the machine and the work place must be evaluated on the basis that the machine is an extension of a biological unit, man, and can only do what the man wants it to do.

To match our constant man to the machine and still accomplish the objective of maximum safety and efficiency we should consider:

1. The work place. The machines or equipment should be arranged so that the operator has

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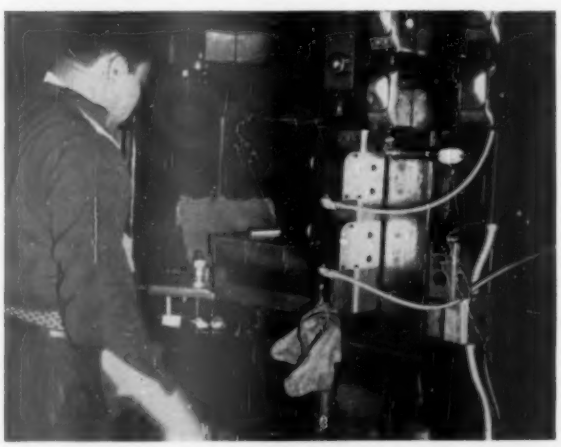


Electronic guarding on 150-ton gear-driven air-operated clutch press. This installation is worked in conjunction with electronic two-hand trips. Press is started by activating two-hand trip controls. If curtain of light is broken by operator's hand, relay circuit is broken, closing solenoid air valve disengaging air clutch, thereby stopping ram at any point of stroke. Control is furnished with lock-in arrangement. A button must be pressed to reset control and restore power to press. Safest installation is when guard is operated from a closed electric circuit so that if power fails or bulbs burn out, current interruption automatically stops press. (Courtesy L. Spielberg & Sons)

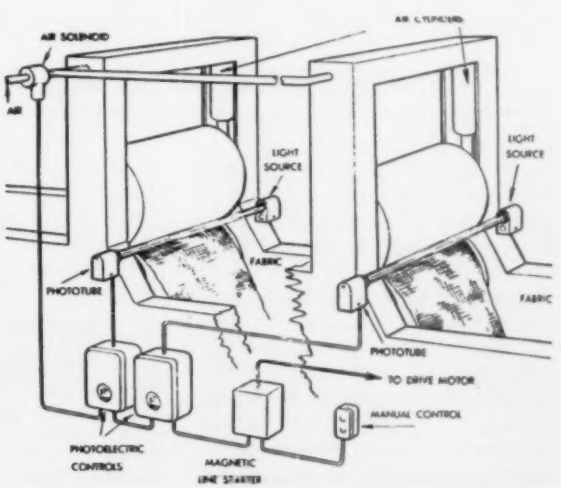


Photo-electric relay on textile dyeing machine. Control beam is projected across 12-ft. width of pressure rolls at nip where rolls meet. Should control beam be broken by operator's body coming within nip area, relay immediately stops drive motor through braking system. At the same time, air cylinder solenoid valve is operated, releasing pressure and opening rolls. If power fails or tubes burn out, machine drive stops and rolls separate. (Courtesy Electronic Corp. of America)

Conductive Floors

. . . how to keep them clean and conductive

In preventing dangerous accumulations of static charges in hospitals, conductive floors are important safeguards. Proper maintenance is needed to keep them effective

By E. J. LINCKE

THE hospital administrator has many types of conductive flooring from which he can choose the one that seems best to meet his needs. His first consideration must be that the flooring meets the requirements of NFPA Code No. 56 for safe practices in operating areas as well as any local code. Since prices cover a wide range, no hospital need be denied the protection afforded by this type of flooring.

E. J. LINCKE is Director, Lincoln County Memorial Hospital, Troy, Mo.

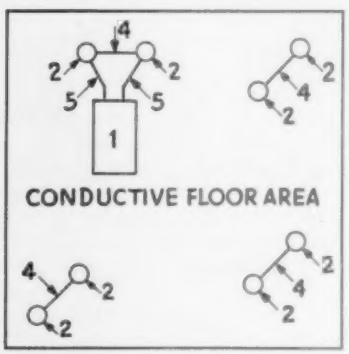
After selecting and installing the conductive flooring, the big question is "How is it going to be maintained?" This is your most important decision. If you fail at this point your entire investment and objective is lost. Where conductive floors have failed in most cases the reason is improper maintenance or improper treatment of the flooring after installation.

Ask a Specialist

To insure yourself against failure of the conductive flooring for these reasons, your first step should be to seek a firm of qualified specialists in the treatment and maintenance of conductive floors. Such an organization will set up the maintenance procedure to be followed and train your employees for this important work. You cannot take a conductive floor for granted and maintain or treat it the same as your other floors. To do this only creates a false sense of security and leaves you open to a serious accident.

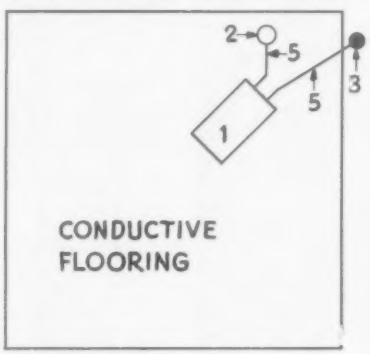
Conductive flooring can be divided into two groups. The rigid

HOW TO TAKE READINGS OF THE FLOOR, FLOOR TO GROUND AND EQUIPMENT TO FLOOR



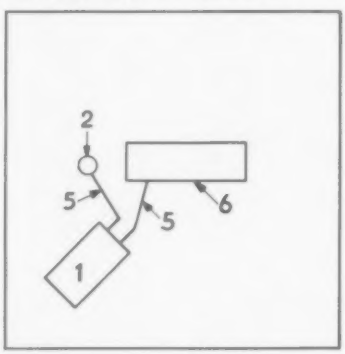
Resistance reading of floors:

(1) Megohmer (2) Electrodes (3) Placing of electrodes for six readings (4) Three-foot space between electrodes (5) Lead wires.
Not less than five readings should be taken of the floor with electrodes three feet apart as outlined above.



Reading floor to ground:

(1) Megohmer (2) Electrode (3) Ground (5) Lead wires.
Conductive floor need not be grounded unless required by local code. If a ground is used, two readings should be taken from floor to ground and from ground to floor. This can be done by taking one reading as outlined in above sketch, then reverse lead wires at megohmer for second reading.



Reading equipment to floor:

(1) Megohmer (2) Electrode (5) Lead wires (6) Operating table.
Readings to determine contact and conductivity of equipment with floor may be made by conducting one lead wire to table and one to electrode placed on floor as shown in above sketch. This method applies to all equipment used in area.

group consists of conductive terrazzo, ceramic tile, cement and oxychloride cement or terrazzo.

The resilient group embraces conductive linoleum, vinyl tile, rubber and plastic coatings.

In the rigid group, conductive terrazzo and oxychloride cement or terrazzo should be sealed to protect against spotting and pitting and to stabilize the resistance that has been built into the floor. Special seals have been developed for this purpose which will greatly lengthen the life of the floor. However, it is important to note that the type of seal to be used must be prescribed by a specialist after testing of the conductive flooring. Its application should also be supervised to assure the best possible results.

From this point on it becomes a matter of daily maintenance of the conductive floor. Cleaning materials are available that will not deposit an insulating film on the conductive floor. Their use will provide all of the hygienic value which is so important in an operating area.

The resilient group presents a different problem. Because of the resilience built into this type of conductive flooring, these floors should be polished to protect them against abrasion due to traffic and mobile equipment. Maintenance of this type of flooring, therefore, falls into two categories—cleaning and polishing.

Just as in the case of the rigid floor, it is important that only a cleaning material that will not cause an insulating film be used. The selection of the cleaning material is very important since it is used at least once daily in the operating area. This means that if the cleaner should develop a slight insulating film each time it is used, the frequent mopping necessary will soon cause complete insulating. Such a condition can be avoided by consulting those who have the "know-how" of the job and can fit into your cleaning operation the proper material to meet your needs.

To protect against abrasion, which will shorten the wearing life of the floor, and to preserve the beauty built into it and, most important, to protect and stabilize the conductivity, it is desirable that the floor be coated with a safety polish. The polish must be anti-slip and not cause an insulating film to develop even after many coats.

Ordinary waxes, incidentally, should not be used on a conductive floor. While they may not insulate after one or two coats, these products will eventually build up an insulating film and defeat your basic purpose.

Polishes are available that have been developed especially for conductive floors which will not insulate even after a build-up of 20 coats. However, the polish as well as the cleaner must be fitted to your particular conductive floor and the conditions which exist in your hospital.

In the foregoing we have dealt only with starting your maintenance program from the day of installation.

The most common problem of conductive floor maintenance is faced by the hospital with already-installed flooring which is being improperly maintained. Readings may be either too high or too low as prescribed by NFPA Code No. 56. In 98 per cent of these cases, safe readings can be developed by proper treatment and maintenance procedures. Since this is a highly technical job, it is necessary to consult a qualified organization specializing in this field.

All hospitals should have a megohmer to take bi-monthly resistance readings of conductive floors. These readings should be recorded for future reference. Any change in the resistance of the floor can be detected immediately. The cause can be determined and corrective measures taken before the condition becomes serious.

That Sixth Sense

Most people have five senses. Smell, taste, touch, sight, and hearing. But, how did that other one—*nonsense*—get in there?

People are all the time making a to-do about the fourth dimension and such protracted philosophies. Now, how about us making a to-do about this sixth sense?

It seems that when one of the five senses is weakened or destroyed the others become keener. For example, a blind man generally has more sensitive hearing and touch than the average person. What I wonder about, is how come so many people with all five senses good and strong are so loaded with nonsense?

It's also amazing how people can be so adept at this sixth sense without any special training in it. You would think it had been treated with one of those new radioactive isotopes—causing a mutation—like an octupus with one king-sized tentacle.

The newspapers and the injury rates emphasize the power of this sixth sense:

—The guy who makes a grand slammer by missing a curve with the whole family in the car, killing them all.

—The guy who saves $10 not buying a guard for the power saw in his home workshop, then cuts off two fingers.

—The guy who "just didn't stop to think" and got hurt on the job.

All these cases indicate the prominence of that old sixth sense resulting in damage to the others.

If you want to preserve the senses God gave you, cut out the *non*sense!

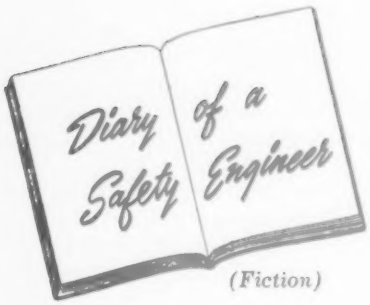
ROBERT D. GIDEL

During the holiday season hundreds of greeting cards came to me from all over the world. To all of you I extend thanks for your remembrance and the deepest gratitude of the entire staff for your friendship to the Council.

Your helpful efforts for the promotion of safety and the kind words you have expressed so often have been a daily source of inspiration.

My warmest personal greetings and best wishes for 1956.

NED H. DEARBORN



(Fiction)

Last summer our safety engineer inherited a mess with his new job. Now he has to justify his work to a boss who's also on the spot

YEAR-END WAR

By BILL ANDREWS

January 1, 1956

LAST SUMMER I moved from Jackson-Barnes to Exsteel. I moved from a fairly stable, conservative concern in a small Illinois town to a larger organization in Chicago which had been badly managed, and was in the throes of a major shake-up imposed upon it by outside financial interests. Part of the price of the old bad management had been a high accident rate. Part of the shake-up was my own appointment.

I came expecting a first-rate battle against intrenched ignorance.

Surprisingly enough, the battle did not materialize in those opening months. So much new blood was brought in during the shake-up that the intrenchments of the old ignorance were shattered. The Old Guard was insecure and more than a little humble.

There were struggles, of course. Yet they were very different from those at Jackson-Barnes, where I had had at the start to battle against an established Old Guard which did feel secure and proud of its accomplishments. At Exsteel the conflicts could be selected with an eye to making quick and certain gains against situations so bad as to be clearly indefensible.

So, for some half a year, I have been, in general, in the position of a guy shoving with all his might against doors that I thought were locked, only to have them fly open easily.

That *was* the situation.

But it is over, and the battle is on for fair—a battle that is being fought on ground I did not expect with new and surprising line-ups of forces.

It began early last month with the circulation to department heads of a very brief memorandum from the president, reading:

"I expect to receive from each of you a rough preliminary draft of an annual report by December 15. Obviously, the final fill-in of data must wait for the end of the year, but you are certainly now in a position to block in the main shape of your report. You have all been given a very free hand both budget-wise and authority-wise. Your report should evaluate your stewardship of the money and authority given you. It should also estimate your future needs and justify them."

At the same time as the memo went out, the office grapevine passed the word that the pressure was on our president from Eastern Enterprises, the concern which bought control of Exsteel, to show some concrete results for the substantially increased expenditures in 1955.

I didn't worry much about it, simply putting together some 11-month accident figures, listing cost increases and explaining them, and making a rather rough preliminary budget for the safety department.

I submitted that on the 15th. My draft was back on my desk before the day was out, with three pencil notations in the president's handwriting. Beside my statement that the accident rate had dropped six per cent from November 1954 to November 1955, was the word, "Insignificant." Alongside my list of explanations for increased expenditures was written, "Inadequate. Details and proof of usefulness, please." Finally, my rough budget was crossed out, and in the margin were the words, "This sounds like guessing. I want a program to explain these figures, and I want estimates of their effect in reducing accidents."

While I was still mulling over the rejected draft, I was called to a meeting of department heads. On the faces of the other men present were assorted expressions of confusion, fear, irritation, and plain anger. Apparently mine had not been the only report to get rough handling in the front office.

The president opened up with a blast at the group of us for

fuzzy thinking. He wanted, he said, a straight, clear story of the past and a fully thought out budget and program for the future.

At first nobody said anything. Finally MacIntyre, the office manager, said, "I guess we didn't understand what you wanted, J. B. Now it's clear, and I'll map out the details for you right away."

Norden, of product development, one of the best brains in Exsteel, got up then.

"Mr. Johnson," he said, "I want to know a little more about what you want. I was brought into this organization to create what was practically a new department. I was told to spend money to build it up. I've done that. I told the people at Eastern and I told you that it would take a long time for that expenditure to produce results. I told them and you that there would be many projects which would, after full exploration, prove unproductive. Now I'm asked, apparently, to justify in terms of current income expenditures that couldn't possibly have produced results by this date."

Johnson, the president, said, "I didn't ask you to justify in terms of current income. I simply said justify it in financial terms. I know, and Eastern knows, that development work takes time. What I want is proof that the expenditures, taken over-all, will produce—and how much they will produce."

Norden replied, "Not having a crystal ball, the best you can get is an informed guess."

Johnson barked, "I don't write blank checks on the corporation on guesswork!"

Norden stood for a moment, the anger mounting in his face, the quick brain battling to keep the anger from dictating the next statement. Finally, he said very quietly, "I'll think that over." And he sat down.

As the meeting proceeded, you could see the group choosing up sides. The yes-men were eating humble pie and agreeing to Johnson's terms. Plant protection, sales, and advertising lined up with MacIntyre. But the men on the plant floor—foundry, machine shop, power press, assembly—had very little to say. The vice-president for manufacturing said nothing at all, and his face was a blank mask.

I knew what was in their minds—or the minds of most of them. They'd come in and tackled a dirty mess. They'd worked their heads off for months to bring some intelligence and order into a chaotic production situation. Now, before they could hope to prove anything, they were asked to prove that their efforts had paid off.

Finally, after the personnel manager had floundered unhappily trying to stay on both sides of the fence at once, I was called on.

I referred to Johnson's notes on my report. "You said the six per cent drop in accidents was insignificant. I don't know whether you meant that it was insignificant achieve, or whether you meant compared to what we must that mathematically the drop was non-significant. In either case I

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Green Cross Messenger

"Christening" new EBMUD accident prevention car, Mrs. LaVonne Addison grasps a bundle of safety flares as George M. Reis (left), safety inspector, and Judge William J. McGuiness, Eastbay Chapter president, doff safety hats.

AN ACCIDENT prevention car bringing safety services to 24 installations of the East Bay Municipal Utility District, Oakland, Calif., has been put into service.

With its red roof light flashing, the car was "christened" in an informal ceremony by Mrs. LaVonne Addison, EBMUD safety unit employee, who wielded a bundle of safety road flares instead of the customary bottle of champagne.

At the ceremony William J. McGuiness, president of the Eastbay Chapter, National Safety Council, hailed the car as "symbolic of the rapid advances in occupational safety made by Oakland area business firms and in particular by that safety standard bearer, the East Bay Municipal Utility District."

The car, to be driven by George M. Reis, safety inspector, will move constantly around the District as Reis inspects for safe conditions and conducts safety meetings. It will be used to test all new employees who will do any driving on the job and is equipped with a detonation device to demonstrate the distance an employee-driver takes to stop the car at any speed.

The car will carry in its trunk a supply of safety equipment including safety hats, goggles, shoes, fire extinguishers, and flares.

Measuring Work Injury Experience

Revisions add to usefulness of American Standard Method of Recording and Measuring Work Injury Experience (Z.16.1-1954)

By HENRY G. LAMB

WORK within the American Standards Association concerning frequency and severity rates originated from *Bulletin 276* of the U. S. Bureau of Labor Statistics published in 1920. Although this bulletin was developed by a governmental agency, the rate provisions in it were followed by many people in private industry.

In 1926 it was agreed that a revision of *Bulletin 276* should be developed by a sectional committee operating under the procedures of the American Standards Association, and it was at that time that the Z16 project was initiated. The sectional committee worked for over ten years, and the first standard developed by this committee was completed and approved in 1937.

In general, Z.16.1-1937 provided that all injuries "arising out of and in the course of employment" should be included in the industrial injury rates, and that if there were any question as to whether to include a particular incident, the ruling on that incident by the local workmen's compensation authority should hold. This standard was adopted by the National Safety Council and used as the basis of their *Safe Practices Pamphlet No. 21.*

During World War II, due to the accident prevention efforts by governmental departments, there was a tremendous increase in the reporting of accident statistics, and certain questions were raised with regard to the adequacy of this standard. Work was, therefore, started on a revision which was approved in 1945.

One of the most fundamental changes in the 1945 revision was the separation of statistics kept in accordance with Z.16.1 from decisions of the local workmen's compensation authorities. This revision provided that, in general, all injuries arising out of and in the course of employment should be included in the rates.

The standard included certain specific exceptions to this rule. The standard also provided for a committee on interpretations so that if there were any question as to whether an injury should be included, the facts were to be submitted to the committee on interpretations for a decision.

The National Safety Council cooperated wholeheartedly in this revision, and promptly revised *Safe Practice Pamphlet No. 21* in accordance with the 1945 revision so that all statistics kept by the Council would be in accordance with the latest revision of the American Standard.

Industry, in general, took real advantage of the Committee on Interpretations. Over a period of eight or nine years more than 300 cases have been handled by the committee.

As a result of the questions raised in these cases, and other suggestions received by the Z16 Committee, this standard has

HENRY G. LAMB is Safety Engineer, American Standards Association. This article has been adapted from papers presented at the Cement and Quarry Section, and the session "Z16.1—the Yardstick of Safety Performance," 43rd National Safety Congress, October 18, 1955.

DOES THAT INJURY COUNT?

In most cases it is not difficult to determine whether or not the injury arose "out of and in the course of employment." First step should be to consult American Standard Method of Recording and Measuring Work Injury Experience, Z.16.1-1954.

There are, however, occasional borderline cases. If there is still doubt about whether the case should be included in the frequency and severity rates, the case may be submitted to the Committee on Interpretations. Since there are seven persons on this committee and cases are reviewed by mail, it is requested that nine copies of the report on each case be submitted. Address: Committee on Interpretations, American Standards Association, 70 East 45th Street, New York 17.

again been revised. The revision was approved December 16, 1954. The National Safety Council, the Bureau of Labor Statistics, and many other national organizations have adopted this revision and put it into effect beginning January 1, 1955, in order that the national statistics of each organization could be prepared on a comparable basis.

Throughout the discussions in this latest revision it appeared that all members of the sectional committee favored a revision. The only problem was that each committee member believed it should be revised in a slightly different way from each other member. It was only through friendly discussions and the give and take of compromise that it was possible to reach agreement on this revision. Now that it has been approved, all parties concerned have cheerfully gotten behind this revision; they have adopted it and put it into effect within their organizations in order that there may be national comparability between these statistics.

CHANGES IN AMERICAN STANDARD METHOD OF RECORDING AND MEASURING WORK INJURY EXPERIENCE Z.16.1-1954

- **Severity rates calculated on same basis as frequency rates, million man-hours worked.**
- **Addition of a new measure of injury experience, "Average Days Charged per Disabling Injury."**
- **Temporary partial disabilities combined with medical treatment cases under heading "Medical Treatment Injuries."**
- **Changes in the scheduled charges for finger and toe injuries.**
- **Definition of "Occupational Disease."**
- **Modification of circumstances concerning hernia.**
- **Addition of circumstances concerning back injuries.**
- **New section on injuries arising out of external events.**

Important Changes

In the first place, the present standard represents a complete change in the style and format of presentation. A section on definitions collects them in the first part of the standard rather than having them scattered throughout the document. Included, for the first time, is the definition of what the sectional committee means by *occupational disease*.

Whereas the old standard grouped industrial injuries into six classes—death, permanent total disability, permanent partial disability, temporary total disability, temporary partial disability, and medical treatment case—this revision combines the temporary partial disability with the medical treatment case under the heading, "Medical Treatment Injury."

The section on definitions also includes a definition of "average days charged" for those who desire to use this term.

Perhaps the next most striking change is the definition of severity rate. Whereas before the severity rate was the total days charged per thousand employee-hours, it is now the total days charged per million employee-hours. This places the frequency rate and the severity rate on the same basis of man-hours of exposure, and it is hoped that for those who are just beginning to work with this system it will make it far more easy to comprehend.

One of the other significant points considered by the sectional committee was that in *Accident Facts*, published by the National Safety Council, the severity rate for most industries was becoming less than unity, and represented a figure shown in decimals to two or three places. Now with the change in the base of man-hours the severity rates will be shown as whole numbers, and it has been recommended that it be shown to the nearest whole number without the use of decimals.

To simplify the time charges for injuries to two or more fingers or to the toes or bones of the foot, the time charges for these extremities have been modified, and charts have been published in the standard which make the computation of time charges much easier for this type of injury.

The basis for counting injuries is still fundamentally those injuries which arise out of and in the course of employment. This standard again makes certain specific exceptions, and perhaps there are even more exceptions now than there were in the 1945 revision.

The specific circumstances around which hernia cases shall be counted have been modified slightly, and a complete set of circumstances concerning back injuries has been added.

There is also a special section concerning injuries arising out of external events. This provision stems from the large number of fatalities resulting from the Texas City disaster.

Making Interpretations

The original standard method of compiling industrial injury rates (Z.16.1-1937) was short and to the point. On the question of including injuries, the ruling of the local workmen's compensation authority was the guide. If the authority included the case for medical treatment and compensation payments, then it should be included in the rates.

In 1945 the standard was divorced from workmen's compensation rulings and the Z16 Sectional Committee was faced with the problem of how to write into the American Standard just which injuries should be included.

Through workmen's compensation referees and court decisions volumes had been written on what constitutes "arising out of and in the course of employment." A Committee of Judges was established to decide which cases

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Evaluation of Hearing

The first step in an ear protection program

By ROGER B. MAAS, Ed. D.

HEARING measurement stations are a logical starting point in a program of industrial hearing conservation. Usually these can be established easily in plants in large cities where specialized medical service is available and where large numbers of workers make practical the expenditure. An otologist is obtained to conduct a complete program under standards established by the American Academy of Ophthalmology and Otolaryngology, hereafter known as AAOO.

In Wisconsin, where we have been forced into a program to protect both employer and employee from the effects of noise, our problem has been to assist numerous smaller plants in cities under 30,000 population to develop facilities for pre-employment hearing measurements. We prefer "hearing measurement" to "test" because it avoids some undesirable psychological connotations contained in the word "test." We don't want to encourage the man to feel that he must try devious methods in order to "pass" to qualify for employment. Actually, it is a measurement of hearing acuity before the man comes on the job, just as we measure his height, weight, blood pressure, etc.

DR. ROGER B. MAAS is Hearing Consultant, Employers Mutuals, Wausau, Wis. This article has been condensed from a paper presented at the 43rd National Safety Congress.

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Measuring an employee's hearing with a pure-tone audiometer. Preparing the subject for measurement is an important step. Details should be explained carefully, particularly if he has never had a previous audiogram. Photo from Employers' Mutuals' "Guide for Audiometric Technicians."

Similar expressions might be: hearing check, inventory, examination, evaluation, audiometric reading, or audiogram. More than 75 per cent of the installations in Wisconsin are in small plants having little labor turnover or new hires.

We have found that an excellent starting point is to approach the manufacturer's council, the industrial committee of the chamber of commerce, or its equivalent, which calls a meeting of its membership. Speakers may be an otologist who is informed on the AAOO subcommittee on noise in industry's research program and a legal expert selected to give a history of the problem, with emphasis on the need and purpose for establishing a functional hearing conservation program. Such a meeting usually results in a successful kick-off.

To those who are planning programs in smaller communities I would suggest that you use the terminology "industrial hearing conservation program." It is easier to put across. All of us are interested in conservation, whether it is natural or human resources.

I have attended a number of meetings where the AAOO film, *The Ears and Noise*, or the NBC film, *The Effects of Noise on Man*, effectively oriented the group as to problems and what to do about them. In our own state, the Medical Society drew up a guide entitled "Recommendations for Planning Hearing Conservation Programs in Wisconsin Industry" which can be obtained by writing to the State Medical Society, Madison, Wis. This carried a lot of strength because the program came not from management or the insurance company but from our own doctors who felt that industry had a responsibility.

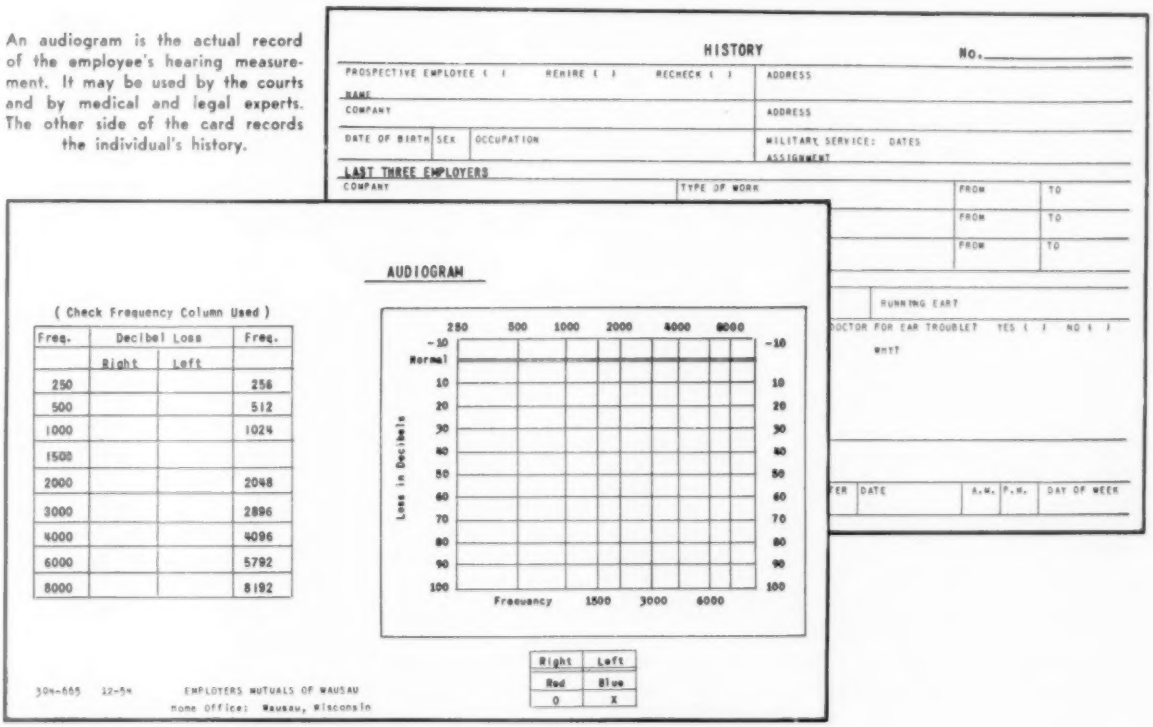
The next step is for representatives of plants to decide upon a local hearing conservation committee to work out details of the program. One of the communities I know had a small labor turnover and felt that it did not pay for each little plant to purchase an audiometer for just a few new workers each year. So they asked the local visiting nurse association if it would be willing to carry on the program of hearing measurement.

In other communities, the hearing conservation committee asks the cooperation of the local hospital, medical clinic, general physician, or the local vocational school to undertake this program. The local otologist who was consulted at the beginning and present at the meeting of plant representatives said he would be glad to supervise the station and assist in training the audiometric technicians. We have found most otologists willing to do this because they feel that their time is more profitably spent in seeing the many referrals and not in carrying on the program of preemployment audiometric screening.

Every facility in the community program should be supervised by a qualified otologist. The VNA, to follow one very workable plan through in more detail, decided to undertake the project because they already were serving indus-

—*To page 99*

An audiogram is the actual record of the employee's hearing measurement. It may be used by the courts and by medical and legal experts. The other side of the card records the individual's history.



HISTORY No.

PROSPECTIVE EMPLOYEE ( ) REHIRE ( ) RECHECK ( )

NAME ADDRESS

COMPANY ADDRESS

DATE OF BIRTH | SEX | OCCUPATION | MILITARY SERVICE: DATES | ASSIGNMENT

LAST THREE EMPLOYERS

COMPANY	TYPE OF WORK	FROM	TO
		FROM	TO
		FROM	TO

RUNNING EAR?

DOCTOR FOR EAR TROUBLE? YES ( ) NO ( )

WHY?

ER	DATE	A.M.	P.M.	DAY OF WEEK

AUDIOGRAM

(Check Frequency Column Used)

Freq.	Decibel Loss		Freq.
	Right	Left	
250			256
500			512
1000			1024
1500			
2000			2048
3000			2896
4000			4096
6000			5792
8000			8192

250 500 1000 2000 4000 8000

-10 Normal 10 20 30 40 50 60 70 80 90 100

Loss in Decibels

Frequency 1500 3000 6000

Right	Left
Red	Blue
O	X

304-665 12-54 EMPLOYERS MUTUALS OF WAUSAU
Home Office: Wausau, Wisconsin

Assistant Shop Supervisor Ray Stair (left) holds clipboard as Jim Barringer signs off his machine. In background is animated grocery display converted to an eye-catching safety poster. Arms of display move up and down; hands hold a pair of cracked safety glasses near the message: "You can get more goggles, but you're on your last pair of eyes."

We Can Learn From These Teen-agers

Industry's investment in these youthful businessmen will pay off in safer citizens and a safer community

By WILLIAM R. VATH

TWO HUNDRED FIFTY small firms and 6,000 workers with only one serious on-the-job injury in 10 years.

That's the safety record of a group of industrial employees in and near Chicago. This labor force is unusual in other ways, too. A typical worker earns only 20-30 cents an hour, spends only two hours a week at his machine or assembly line, and is between 15 and 21 years old.

These are the 3,000 boys and 3,000 girls of the Chicagoland Junior Achievement Area who work at "business centers" which are open four nights a week, eight months a year. Using light, home-workshop-type machines and lots of elbow grease, they produce and market everything from personalized diapers to complicated radios.

Their safety record is little short of amazing considering that, until two years ago, no formal safety program existed in any of the 12 Chicagoland business centers scattered from Waukegan, Ill., to Whiting, Ind. Though the absence of serious injuries from 1945 to 1953 was due to the constant vigilance and supervision of nearly 1,000 adult advisers, credit for the continuing safe performance goes to the people who pioneered what is now a well-organized, effective safety program.

They are Center Manager Ray Koenicke, the adult advisers and Junior Achievers at his South District Business Center on Chicago's Southwest Side, and the Junior Achievement Committee of the Greater Chicago Chapter of the American Society of Safety Engineers.

Like all the 2,000 JA companies across the country, the 40 JA corporations at the South District Center are sponsored by adult firms, mostly industrial. The youngsters organize at the beginning of each school year, sell 50-cent shares of stock to raise working capital, and choose a product to manufacture and sell. They elect officers, keep books, pay themselves an hourly wage, and, at the end of the school year, liquidate the corporation and pay back the stockholders. If the company makes a profit they declare dividends for stockholders and a production bonus for employees.

The average JA company has 15 members and is guided by three adult advisers who are full-time employees of sponsoring firms. Advisers must attend a training course of five weekly ses-

"Scratched finger on plastic; iodine and bandage given to injured person," reads the accident report that Ray Stair (left), shows to Bill Leininger, safety director, Delco Radio Division, General Motors Corporation, and JA safety director on Mondays.

sions before the JA season begins. Instructors conducting these training sessions are themselves trained for 16 weeks.

In their work at the South District Center the 642 achievers are guided by 140 adult advisers from such sponsoring firms as International Harvester, Container Corporation of America, Ford Aircraft Engine Division, General Motors, and Sears, Roebuck & Company.

The heart of any safety program is its organization. Back in 1945 JA had none. Teen-agers working on band saws, drill presses, and other machines were instructed how to operate them, closely supervised, and reminded to watch their fingers, but no systematic, formal safety program existed. Achievers were working safely—injuries were confined to scratched fingers—so no one gave much thought to a safety organization.

Then, two years ago, the Chicago chapter of ASSE entered the picture.

"They called us up, said they had appointed a JA committee, and asked how they could help," says Charles Kessler, JA program director for the Chicagoland area.

JA headquarters welcomed the help of professional safety men. The first step was what Mr. Kessler calls "engineering." During the 1953-54 season teams of two members of the JA committee of the Chicago Chapter ASSE inspected each of the seven major business centers.

ASSE members checked the physical layout for congestion; machines for guards, pinch points, power switches, and grounding; fire exits; housekeeping; ventilation, and a dozen other points including safe work habits.

They found plenty of room for improvement. At least half of the machines had no ground wires, ventilation was non-existent, "No Smoking" signs were openly violated, flammables were stored in open containers, housekeeping varied from poor to bad, some gas cooking stoves were without automatic pilot lights and had valves which could easily be bumped open, work habits were unsafe, hand tools were in bad shape, the wrong tools were being used for some jobs, and pinch points presented hazards on several machines.

Dale Dolan, tool room assistant, shows canvas bag installed on belt sander to help eliminate dust hazard.

Inspection reports from the various centers were consolidated and analyzed at a joint meeting of the ASSE committee and JA officials. Center managers were informed of the unsafe conditions

—*To page 127*

Discussing progress on JA safety manual are Center Manager Ray Koenicke (left), Junior Board Safety Director Ed Sorenson (center) and Charles Kessler, program director for the JA Chicagoland area. Safety poster is one of several made by Ray Koenicke.

Bob Olszewski (with sleeves rolled up) and Jim Barringer operate band saw. Bob uses a pushstick and Jim is "takeaway man." Both wear Green Cross caps and safety glasses. Note front control (arrow) for fast, easy operation of power switch.

HARD HATS

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425 North Michigan Ave., Chicago 11, Ill.

1. Head protection is needed on jobs where there is possibility of flying or falling objects or the danger of bumping into overhead structures. In addition to impact resistance, a specific hat meeting the tests and requirements of high dielectric strength, and imperviousness to moisture, is recommended for electrical workers.

2. National Safety Council reports that the average for the nation for the past five years has been about 120,000 head injuries, excluding eye injuries. This amounts to six per cent of the total disabling injuries in all types of industry in the United States.

3. The above total includes a number of fatalities and burns resulting from electrical workers contacting their heads with energized equipment. A study of statistics compiled by the Edison Electric Institute revealed that approximately eight per cent of all contact fatalities were due to head contacts.

Case Histories

4. A gas generating plant was being demolished. The work was being done under contract but company employees were used as inspectors and fire watchers during the job.

While moving about in the course of his duties, a man was struck on the head and on one foot by a brick which fell from a considerable height. The brick struck him first on the head, then bounced off onto his foot.

The man's head was uninjured and possibly his life saved by his safety hat. However, he suffered two broken toes because he was not wearing safety shoes.

5. A tree-clearing crew was operating a power saw in rough, hilly terrain. They had just cut a 16-inch thickly branched beech tree, and the men stepped aside as it started to fall.

As it fell, it took down a number of small trees, including a dead sapling about 4 inches in diameter and 30 feet tall. This sapling toppled over on a man nearby, striking him on the head and punctured a hole in his safety hat, stunning him momentarily but causing no serious injury.

6. A lineman was saved a serious and possibly fatal injury while climbing a pole. A glaring sun caused him to misjudge the distance to an energized conductor.

The high dielectric hard hat contacted a 4,800-volt wire and provided his head with protection against electric shock.

Falling tree struck metal hard hat. With proper head protection wearer suffered only bruises.

This Data Sheet is one of a series published by the National Safety Council, reflecting experience from many sources. Not every acceptable safety procedure in the field is necessarily included. This Data Sheet should not be confused with American Standard Safety codes, federal laws, insurance requirements, state laws, rules and regulations, or municipal ordinances.

7. Ability of an object to withstand impact without breaking depends to a large extent on its ability to deform (dent) and displace, or "roll with the punch." In all types of hard hats, the hard shell is held away from direct contact with the head by some system of suspension which provides for space between the shell and the crown straps.

8. Hard hats give protection against blows through a combination of four factors. (1) When an object strikes the hat, the material itself resists the impact; (2) Because of its shape, the force of the blow is distributed over the entire area of the hat; (3) The suspension acts as a shock absorber, and (4) The hat is able to "roll with the punch," further softening the blow. The net result is that most blows never reach the head itself, and those which do reach the head have had a great deal of their force or energy dissipated by the hard hat.

9. Hard hats should never be worn on top of everyday hats or caps (with the exception of winter liners made specifically for the hat) since they interfere with or eliminate the shock absorber effect of the suspension.

Specifications

10. There is a Federal Specification GGG-H-142b entitled "Helmet, Construction Workers." This specification was approved by the Commission, Federal Supply Service, General Services Administration, for use by all Federal agencies.

11. The Accident Prevention Committee of the Edison Electric Institute has prepared and approved—"Specifications for Electrical Workers' Insulating Safety Headgear."

12. Both list standards under general headings of: scope and classification, applicable specifications and standards, requirements, sampling, inspection and test procedures and preparation for delivery.

13. A number of states have accepted and recommended these specifications for use in general industry, keeping in mind the dielectric requirements for electrical workers.

14. Standard terminology for protective hats and caps as established April 12, 1955 by the head protection committee of the Industrial Safety Equipment Association is as follows:

1. *Shell*—the word "shell" should be used to describe a hat or cap less suspension, accessories, or fittings.

2. *Suspension*—should be used to describe the internal cradle of the hat commonly called liners, linings, or cradle.

3. *Crown Strap*—should be used to describe the straps leading from the sweatband over the head, which straps for some time have been called cradle straps.

4. *Sweatband*—should be used to describe the band which contacts the head sometimes called "headband."

5. *Winter Liners*—should be used to describe the special winter hood assemblies frequently called "winter linings," "winter hoods," "zero hoods," and the like.

Hat Styles

15. There are two basic styles: a hard hat with a full brim completely around the head extending over the forehead, ears and back of the neck; a hard cap or short brimmed visor type hard hat with a peak in front.

Air space between the wearer's head and the crown of the hat provides free air circulation, cooling, and comfort.

The crown straps have a tie cord for adjusting for a shallow or deep cranium. Cord should be tied with a square knot. Always make certain that there is at least 1¼ in. clearance between the top of the wearer's head and the inside shell of the hat. This is important for impact and ventilation.

16. All styles of hats have provision for chin straps which will keep them from being knocked or blown off.

17. When working in cramped quarters, sometimes the hat with the full brim extending completely around the head, will catch or be bumped, causing it to tilt on the head.

18. Another style might be considered such as a hard cap or short brimmed visor type with a peak in the front only.

19. When line work is done in relatively cold climate, workmen usually wear jackets with attached parkas. It is difficult to use the full type hat in conjunction with these parkas. When the parka is pulled up for protection against the wind, the cap type, having front brim only, has an advantage.

20. Some models have brackets to support welding masks, face shields, or miner's cap lamps. Some types of plastic eye shields hinge under the peaks, so they lie flat when not in use. Standard face shields are either the clip-on or swingback type, and are made in varying thicknesses of clear or green tinted acetate. Face shields act as a protection against moderate heat, flying wood and metal chips.

21. The hard outer shell of the hat is supported by crown strap and sweat band which keeps the shell away from the head and cushions it against blows. These modern suspensions also allow for air circulation between the head and the hat or cap shell.

22. Sweatbands are made of leather, leatherette or vinyl. There are two types: (a) sized sweatbands for the specific head size of the wearer (b) universal sweatbands which are adjustable to fit all sizes of heads. Both types should be given consideration. These suspensions are held in by clips or buttons attached to the hat or cap and by lacing. The suspensions should be replaceable, and they should be replaced when they begin to deteriorate, or when the hats are transferred from one person to another.

Materials Used

23. **Cloth Laminated Plastic**—molded under high pressure, is resistant to impact and the effects of water and oil. Dielectric strength is good, but not equal to dielectric protection in hats designed especially for electrical workers.

24. **Molded Plastic**—molded under high pressure, is resistant to impact and the effects of water and oil. Electrical workers' hats and caps are molded from special plastics and have high dielectric strength in addition to resistance

Winter linings provide protection against inclement weather. They fit snugly about the head, neck, and ears and keep drafts and moisture on the outside.

to impact and effects of water and oil.

25. **Glass Fiber** — impregnated with polyester resin, is resistant to impact and the effects of water and oil. It has high dielectric strength.

26. **Aluminum**—made of special alloy, is resistant to impact and moisture, and is a conductor of electricity. **Metal hats should not be worn where there is danger of electrical contact.**

27. Hats which glow in the dark, due to a phosphorescent pigment, are obtainable on special order. These can be used in tunnel work, mining, night construction operations, and other applications where phosphorescent effects are advantageous.

28. It has been recommended that for transportation men, strips of light-reflecting tape be placed on the back and sides of the hat so that at night the person can be spotted quickly if he comes into a light source.

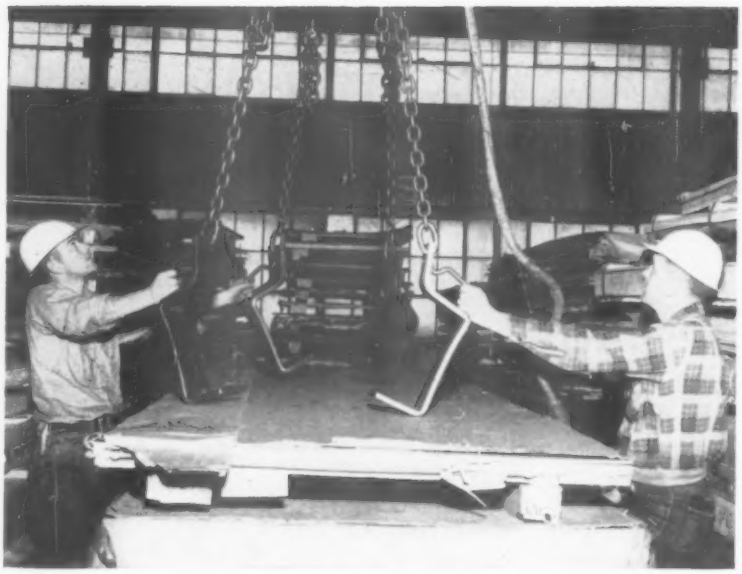
29. Molded-in permanent colors are now available for companies who wish to designate the wearer's department or trade. This is often done in large plants, on construction jobs, in shipyards, and in similar types of industries.

30. For cold weather protection many styles of winter liners are available for wearing under the hard hat or cap. These should be made of water-resistant cloth with fleece or wool lining, or of knitted wool, with or without earflaps. A combination of these winter liners can be worn, depending upon the climate and the amount of protection needed. The shell is usually attached to the winter liners by the crown straps or snaps. This keeps the hat from slipping or falling off, and assures full head protection.

Cleaning and Sterilizing

31. Hats may be transferred from one employee to another if the shell is thoroughly clean and new suspensions are installed.

32. The outside should be cleaned to remove tars, paints, oils, etc. Nonflammable and nontoxic solvents should be used. Good ventilation must be provided during the cleaning process.



Head protection is needed on this type of job where there is a possibility of falling objects, or bumping into suspended or traveling stock.

33. A common sterilization method for hard hats is to dip the shell into a tank of hot water containing a good detergent with a temperature of approximately 160° F. for not less than a minute. These hats should be scrubbed, then rinsed in clear hot water with a temperature high enough so that the hats have to be dipped with wire baskets to prevent hand and arm burns, but not in excess of 160° F.

34. After rinsing they should be wiped dry and inspected for damage that might show up after cleaning.

35. New suspensions should be installed and the entire unit placed into a paper bag or box to protect it against dust and handling.

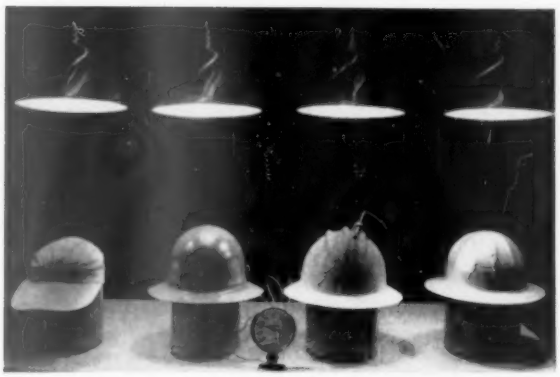
36. This direct evidence of cleanliness, and interest in the employee's welfare, has played an important part in gaining full cooperation of employees in other safety practices.

Starting a Program

37. Company operations determine the need for head protection, for example: Any company engaged in construction work, tree trimming, shipbuilding, logging, mining, overhead line construction; or any industry where there is a possibility of falling objects, or danger of bumping into structures, or the possibility of head contact with energized lines, should make provision for head protection for all of the men involved. Most hard hats will not only protect against impact, but also against acids ordinarily found in chemical plants.

38. At times, a change in operations brings about conditions not considered normal to regular company activities. These point out the need for head protection. For example, a plant might use its own company skilled labor during a slack season. Some industries that are operated on a seasonal basis use their maintenance men, construction men and millwrights, to install or remodel equipment during the period when other labor has been released and the operation shut down.

39. The safety director should acquaint himself with future plans and operations of the company, review other companies' experiences in the same type of work, recognizing that potential hazards



A test with six styles of hard hats, a cloth cap, and a felt hat. Outside temperature of 110° F. was created by photoflood lamps 16 in. away. Inside temperatures of the cloth cap and felt hat were 2° F. cooler than the outside temperature. Inside temperature of the hard hats varied from 5° F. to 12° F. cooler than the outside. The material, reflection, and air space were governing factors.

could be controlled if a hard hat program were installed.

40. Companies with a normal pattern of operation such as construction, maintenance and odd jobs as part of their everyday operations *should make a review of the types of accidents,* looking especially for head injuries. With this method the safety director can recognize a trend toward an increase of this type of hazard and he can spot exactly where it is occurring. The safety director or his representative should get out on the job, watch operations, talk to the man in charge, and at the same time observe unsafe practices or conditions.

41. After detailed information has been collected and reviewed, the safety director should present the information to top management.

42. Before talking to supervisors and workmen, management should establish a policy with the help of the safety director. This policy would regulate the purchase of hard hats, designate who is to wear them, and propose methods of enforcement.

43. Each company has its own problems so that one standard solution cannot be offered to sell the hard hat program at the worker level.

44. In some cases it has proven better to have a mandatory program installed initially. Others feel that in their particular case it is better to advocate the use of safety hats or caps in a slow and patient manner. It takes longer to install the program in this fashion. However, at times this procedure works much more satisfactorily in the beginning.

45. When following this method, management should announce that following a reasonable trial and acceptance by the majority of workers, *an effective date will be established making the wearing of hard hats mandatory.* Rules and regulations will then apply to all. This policy will be explained to the new applicant at the time of employment.

46. Some companies call in the foremen of the jobs and present the problem to the foremen on the basis of past accident experience, a possibility of head injuries due to some new operation planned by the company, or a talk outlining the experiences of head injuries from another foreman or safety director of a company with similar operations. At this time top management should sit in at the meeting, expressing its concern and interest, to back up the program.

All styles of hats have provision for chin straps which keeps them from being knocked or blown off.

47. During the foreman's meeting it is usually a good idea to have several samples of hard hats. The safety director should be familiar with the various styles, materials, attachments, availability of replacement parts, general servicing and the delivery of the materials themselves. A general over-all knowledge will help so a *comparison can be made for purposes of selection.*

48. Foremen are asked to set an example by wearing a hard hat at all times. Workers' attitudes are molded during this trial because they feel that if the foreman is willing to wear the hat on the job, it must be all right, and good enough for the worker. It also gives the foreman an opportunity to answer questions, review complaints, and to sell the hat by daily association and demonstration.

49. Another method is for management to ask a foreman to volunteer his entire crew to try out the hats for a period of time. During this period attention and publicity should be given in a serious vein, outlining that a problem is

being reviewed in order to prevent head injuries from falling materials or electrical contacts.

50. Practices vary widely with respect to providing hats to employees. Occasionally companies issue them directly without charge; others charge the full price, or suggest to the workers that they purchase their safety hats or caps themselves. In some states the wearing of head protection on certain types of jobs is mandatory, and the head protection must be furnished to the employee without cost.

51. The general method is to issue the hats or caps with tool checks or required deposits to insure reasonable care and the return of the hat at the end of the job. All of these things should be determined before the hat program is announced. Anything involving cost to the worker should be considered very carefully.

Promotional Programs

52. For example, a company photographer could spend time photographing workers who are performing normal operations wearing hard hats or caps, pointing out that there is no interference with their movements on the job. The safety director or a company representative could act as an inquiring reporter, asking the workers for their opinions or complaints. This might give a discontented worker an opportunity to express his feelings after the first day's experience in wearing the equipment resulting in his calming down afterward. It might bring out his personal problem because of an improperly fitted hat or his failure to understand the methods of adjusting.

53. Company clubs, house organs and local papers can give publicity to hard hat programs. Photographs of crews wearing safety hard hats or caps can be circulated throughout the factory, and data concerning the proposed program can be sent to local papers and company publications.

54. Some companies hand-letter the man's initials on the safety hard hat or cap, and also paint his name, or use decals or stencils on either the front or the side. Frequently the worker is requested to take his safety hard hat or cap home with him, to acquaint his family with his company's interest in protecting his life. There have been many instances where the man's family has sold the idea of head protection to him, and have even insisted that management provide head protection.

55. The first head injury which is prevented because the worker was wearing a safety hard hat or cap should be given wide company publicity. In such instances it is a good practice to have photographs taken of the worker, the safety director, and other company officials. The information concerning the accident, along with the photos, may then be placed on the company bulletin boards, sent to the local papers, and used in company publications. It is a good procedure also to display the safety hat or cap which saved a man's life.

56. There is an association called the "Turtle Club"* whose purpose is to "provide contact and association of men and/or women who have had the mutual experience of their lives being saved or prevention of severe injury by the wearing of protective hard hats." It helps to promote widespread acceptance and use of head protection.

*Write to the National Safety Council Library for additional information.

57. Insurance company safety engineers can be called upon to give talks, relate experiences, and use training aids to sell the importance of a hard hat program. Sometimes these outside sources have more effect upon the company workers than services and experiences of its own director.

58. Safety meetings should be held with foremen, as well as with the men on the job. During these meetings the safety director and other members of management can explain why the company feels that it is important for the men to wear safety head protection.

59. During meetings the usual complaints about hard hats and caps can be discussed, demonstrations made, and educational materials passed out.

60. A typical complaint concerns improper fit which causes headaches or causes the hat to move loosely and fall off.

61. The wearer should be instructed in how to adjust the sweatband for his headsize. Many hats have size markings on the band so that different settings can be made.

62. With proper band size, the hat will fit so that it will stay on while a man is bending over and yet it will not be so tight that the band makes a mark on his forehead.

It is recommended that each hat be initialled or marked to prevent exchange of hats.

63. In addition, crown straps have a tie cord for adjusting for a shallow or deep cranium. *Always make certain that there is at least 1¼ in. clearance between the top of the wearer's head and the inside shell of the hat.* This is important for impact and ventilation.

64. Another criticism is: "The hat is too hot, or too cold, or heavy."

65. With a scale demonstration, actual weight of hard hats or caps can be shown to be within ounces of the weight of an ordinary felt hat. For summer wear hard hats are not warmer than the everyday type of headwear, they are cooler, because they radiate equal to, or better than, everyday headwear and in addition, have an open space between the wearer's head and the crown of the hat for free air circulation.

66. They are colder in the winter because of this space and air circulation. Therefore a winter liner is recommended.

Care of Hard Hats

67. Hard hats and caps should be used only for the protection of the head. When not in use they should be hung up, not thrown on the ground or in a box. It is true that aluminum, glass fiber, and plastic safety hats and caps will withstand a tremendous amount of impact; however, they should be taken care of as any other piece of safety equipment is cared for. Electrical workers' hats and caps should be kept free from abrasions, scrapes and nicks. They should not be dropped or thrown, and when carried in a truck a special rack should be constructed so they will not become damaged, or have their dielectric strength impaired.

When working in cramped quarters sometimes a hard cap or short-brimmed visor type with a peak only in the front is more convenient.

Electrical hard hats properly stored in the cab of a utility truck. This keeps them from being dropped, stepped on, and free of abrasions, scrapes, and nicks.

68. It is recommended that each hat be initialed or marked in some manner to prevent exchange. Workers should be instructed to wipe dust or moisture from hats before placing them in the storage box. A schedule should be established and maintained for the periodical inspection of all hard hats.

69. Electrical hard hats should be inspected visually each day by the wearer for defects such as cracks, pit marks or other abrasions that have occurred through use. It is recommended that management arrange for periodic electrical tests following somewhat along the same lines as a glove testing program. This gives the worker confidence that his equipment still meets safety specifications and gives management an opportunity to catch any irregularities through the testing procedure.

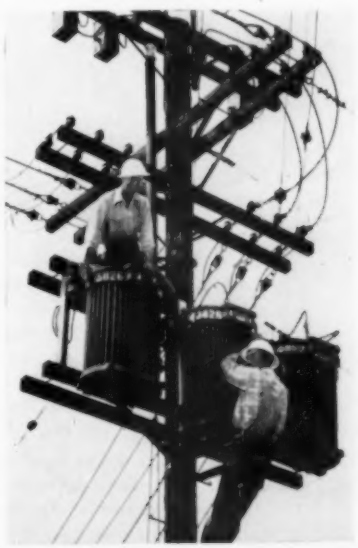
70. An exchange system should be installed so that the worker can turn in his hat in case he finds it damaged or needing new webbing or sweatband.

71. Hats worn by *electrical workers and used primarily for electrical protection*, must be destroyed when they are found to contain cracks, abrasions and other physical damages, and/or fail to meet an electrical proof test.

72. Hats or caps not meeting the *electrical proof test only*—and not damaged physically—may be used by construction crews, painters, or by other workmen on jobs where impact protection only is needed. They should be clearly marked: *"Electrical Rejects."*

ACKNOWLEDGMENT

The original draft of this Data Sheet was prepared by Paul O'Donnell, of the E. D. Bullard Company, as a project of the Engineering Committee of the Greater Chicago Chapter of ASSE. Appreciation is extended to the Head Protection Committee of the Industrial Safety Equipment Association for Reviews and Illustrations. The final draft was prepared by George MacDonald, Staff Representative, Public Utilities Section, NSC. This Data Sheet has been reviewed by members of ASSE and approved for publication by the Publications Committee of the Industrial Conference of the National Safety Council.



Electrical hats meeting the tests and requirements of high dielectric strength and imperviousness to moisture are important to electrical workers who might bump into and make contact with energized conductors.

Here's the best-selling Thom McAn safety shoe in the country!

Husky black work blucher. (S-1012). One-piece seamless back. Leather-lined steel toe box. Oil-resistant Neo-cord sole and heel.

THIS is Thom McAn's work shoe champ! Give it the toughest assignment and you'll see why. Its high top, sturdy leather, and Neo-cord sole stand up under roughest weather and working conditions. The strong steel toe box can take a lot of heavy punishment.

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SAFETY SHOES
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AROUND THE COMPASS

ACTIVITIES • PROGRAMS • EVENTS

Compiled by Field Service Department, NSC

Charleston, W. Va.

A 12-month survey of off-the-job injuries to workers in five Charleston area industries was begun January 1 to determine the cause, location, number, and extent of such injuries in order to plan effectively for their prevention.

Preliminary plans for the survey were drawn by representatives of participating companies and the Charleston County Health Department. Industries include West Virginia Pulp and Paper Company, The American Tobacco Company, Pittsburgh Metallurgical Company, General Asbestos and Rubber Company, and the Charleston Naval Shipyard.

Ontario Safety League

George H. Jackson, vice-president for sales and advertising of Ford Motor Company of Canada, Ltd., was elected president of the Ontario Safety League at a meeting of the board of directors late in November. He succeeds W. M. V. Ash, president of Shell Oil Company of Canada, Ltd., who has headed the League since February 1953, and recently became chairman of the Canadian Highway Safety Conference.

The Ontario Safety League became affiliated with the National Safety Council in April 1955.

Wichita Falls, Tex.

Don Hill, southern district representative, NSC, reports a year-round program of teen-age safety education conducted in Wichita Falls High School which fully exploits the nation-wide Teen-age Road-e-o sponsored by the Junior Chamber of Commerce.

Each month, each home room selects a candidate to enter the "Driver of the Month" contest. Written and skill tests are administered by D. L. Cooper, district safety officer of the Texas Highway Patrol. Winners of the monthly contests (one boy and one girl) qualify to enter the "Driver of the Year" contest.

The boy and girl who emerge winners in the "Driver of the Year" contest are sent by the Wichita Falls Junior Chamber of Commerce, expenses paid, to compete in the National Jaycee Teen-age Road-e-o, and Patrolman Cooper goes along as their coach.

The idea was developed several years ago by the Wichita Falls Safety Council to make safe driving a matter of sustained interest to teen-agers throughout the year.

Los Angeles Child Safety

The Home Division of the Greater Los Angeles Chapter, NSC, gave wide circulation to a six-page folder, "Safety Hints for Christmas," using a novel approach to accident prevention as it pertains to various age groups. The special problems and precautions are listed for the "Hand to Mouth" age; the "Explorative" age, 2 to 3 years; the "Let's Pretend" age, 3 to 4; "Beginning of Creative Age," 4 to 6; "Beginning of Dexterity" age, 6 to 8; and "Specialization of Tastes and Skills" for the 8 year group and older. It is an attractive two-color job.

Kansas City, Kans.

The Kansas City Safety Council of the Chamber of Commerce reports a novel safety contest conducted by the Sealright Company. For the first three days of each week, a safety slogan was posted on company bulletin boards. During the last two days of each week, employees were phoned at their homes and asked to repeat the slogan. If the employee or any member of his family could repeat the slogan correctly he won $3.

Pittsburgh, Pa.

Harry H. Brainerd, executive manager of the Western Pennsylvania Safety Council, has been designated liaison representative of the Conference of Local Safety Organizations to the Industrial Safety Conference of the National Safety Council, and will represent the 84 chapters of the National Safety Council at future meetings of the industrial group.

His job will be to interpret to the Industrial Conference the programs and problems of local organizations and in turn to report back to local organizations on the work of the Industrial Conference. The Industrial Conference met last in New York in December.

Activities of the Field Service Department

(Reported to the NSC Board of Directors, December 13, 1955)

Types of Service Provided. During its seven months of operation, the Field Service Department has devoted staff time as follows:

	Per cent
Service to chapters and affiliated local councils	25
Promoting and assisting new organizations	12
Presentation of Traffic Inventory analyses in states and cities	29
Other service to state and local officials	13
Service to National Safety Council members	6
Staff training and Annual Congress	15

The above breakdown by department functions does not take

—*To page 44*

THE SAFETY LIBRARY

Books, pamphlets and periodicals of interest to safety men

Compiled by Ruth Parks, Librarian, NSC

A British View of Industrial Safety

Safety in Industry, An Introduction to the Protection of Personnel, by D. I. MacFarlane. Illiffe & Sons, Ltd., London. Philosophical Library, New York, 1955. 71 p. $6.00.

DURING 1953 AND 1954, Mr. MacFarlane presented a series of articles on protection of personnel in industry in the *Machine Shop Magazine*. Published under a single cover, they present an interesting study of the contemporary protection devices and systems within British industry.

In his discussion on dust and fume control, MacFarlane presents a well-illustrated article that provides suggestions on the provision of adequate ventilation with interception of fumes and dust as close to the point of origin as possible. The problem is treated within the framework of the Factories Act 1937 and The Grinding of Metals Regulations 1925. He further discusses specific installations and their degree of effectiveness for given types of venting.

As a last resort, the author suggests the use of respirators with the admonition that in many modern industrial processes the respirator should be treated as a first line of defense.

The pattern of approach established in the initial chapter is carried through the balance of his book. Illustrations are used very effectively. Charts and graphs are added when appropriate.

In the chapter, "Guarding Rotating Machinery," MacFarlane goes into considerable detail on various types of guards, and this provides interesting comparison with guards developed for similar machinery in the United States. Again, he considers the legal aspects as developed under the Factories Act 1937.

Press guards, dermatitis, eyes, ionising radiations, protective clothing, lighting and flooring are the further articles that are included as chapters within the book. A number of accidents are recorded, and the author suggests some techniques and equipment to provide protection against such accidents in organizations employing similar machines and material.

For example, he discusses the use of interlock guards with a thorough review on their application, maintenance and sequential operation of power presses utilizing the interlocking guard. He urges sequential operation as a method for reducing wear on the guard mechanism, reducing operator fatigue and for facilitating control of the clutch loading mechanism.

Specific areas of concern, such as dermatitis and eyes, are treated through personal hygiene and the legal liability of the employer. Barrier creams and eye protection are urged with emphasis to the employee through visual means and direct supervision.

The protective clothing chapter is one of the more comprehensive treatments in this book with coverage of the standards as established by the government and recommendations on some of the more satisfactory type of clothing as available to the British industries.

The chapters on lighting and floors provide material that should be of interest in comparison with similar problems in American industries. Of particular interest is a table showing the properties of floor finishes. There is further discussion of proper maintenance and materials for floors.

RAYMOND C. ELLIS, JR.

BOOKS AND PAMPHLETS

Aeronautics

Statistical Handbook of Civil Aviation. Civil Aeronautics Administration. 1955. 119p. 50c. For sale by Superintendent of Documents, Washington 25, D. C.

Atomic Power

Atomic Power and Safety. Consolidated Edison Company of New York, 4 Irving Place, New York 3. 1955. 10p. Free.

Fire Protection

Standards for Safety—Panic Hardware. Underwriters' Laboratories, Inc., 207 East Ohio St., Chicago 11. 1955. 9p. Free.

Health

Industrial Hygiene and Safety of Zirconium. E. C. Barnes, U. S. Atomic Energy Commission, Washington, D. C. 1955. 9p. Technical Bulletin No. 83.

Mines

Safety in Coal Mines. Vol. II. International Labour Office, Geneva, Switzerland. (Washington Branch, 917 - 15th St. N.W., Washington 5, D.C.) 1955. 647p. $3.50.

Quarries

Injury Experience in the Quarry Industry, 1955. U. S. Bureau of Mines. 1955. 70p. Bulletin 554, 40c. For sale by Superintendent of Documents, Washington 25, D. C.

MAGAZINE ARTICLES

Accident Proneness

A Clinical Study of a Group of Accident-prone Workers. James A. Smiley, British Journal of Industrial Medicine, Oct. 1955, p.263.

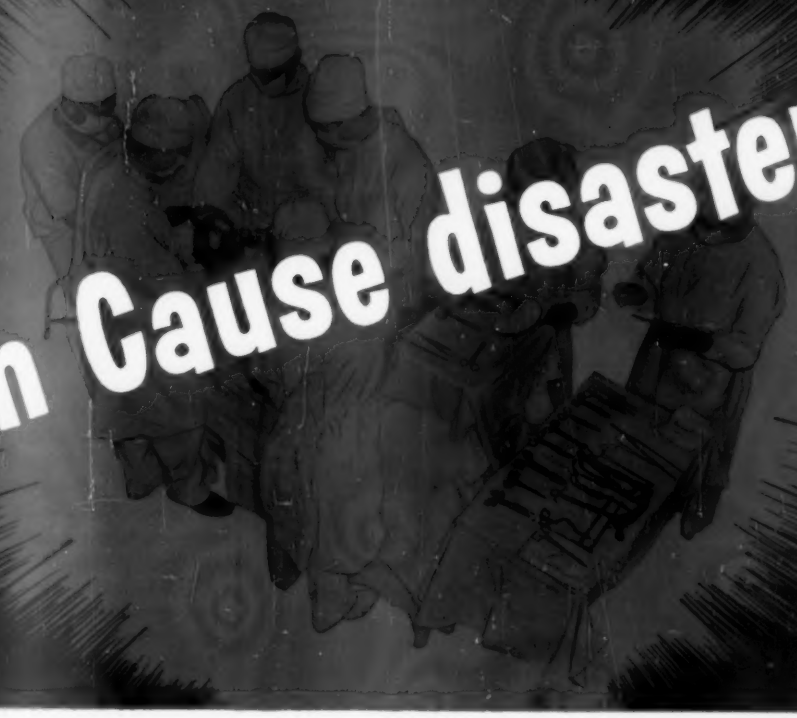
Aeronautics

Douglas Safety Program Pays Off In Saved Time, Money and Lives. Aviation Week, Nov. 4, 1955, p.73.

—To page 96

CONDUCTIVE FLOORS, IMPROPERLY MAINTAINED

Can Cause disaster!



insist upon a conductive wax bearing this seal . . .

LISTED UNDER REEXAMINATION SERVICE UL UNDERWRITERS' LABORATORIES INC OF

Static electricity *strikes* without warning. The installation of conductive floors in the operating suite is one answer to your safety problem . . . but only part of it. They must be maintained properly with safe cleaners and waxes to retain their conductivity and safety factor!

All conventional waxes and finishes are insulators which immediately decrease conductivity and enhance the possibility of an explosion. Yet the floor must be waxed because unfinished, it often has unsatisfactory gloss, is hard to clean and wears out too soon. Only an *accepted* conductive wax should ever be applied to conductive floors!

There are *only* two waxes that bear the Underwriters' Label on the basis of safe electrical conductivity . . . these are Huntington's VC-2C (clear) and H-22 (black) Conductive Waxes! They are water-based waxes and produce a durable, water-resistant surface that may be polished to a high luster.

Tell us the type and color of conductive floors you have and we'll see that you receive samples of the correct Wax for your use. There's no obligation. Write your request to Huntington Laboratories, Inc., Huntington, Indiana, today!

Here's the complete package for safety! Maintenance of conductive floors in operating suites *must be handled differently* . . . let us show you how!

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HUNTINGTON

HUNTINGTON

CONDUCTIVE WAXES

with SPAL Concentrate Detergent

PROVEN BY THE REBOUND!

These Bullard engineering and sales research men are studying not only the impact, but also the rebound of this eight pound ball. Rebound action is the extra safety margin in Bullard safety hats and caps. Their scientifically designed three-ribbed crown not only resists impact but deflects heavy falling objects. This is one of the reasons why Bullard fiber glass hats and caps surpass all necessary industrial tests.

Greater protection plus style, comfort and color make Bullard head protection the best and longest lasting buy in safety hats and caps. Chin straps, winterliners and face shields are available for all styles of Bullard safety hats and caps.

Universal size—replaceable headband

Three-ribbed crown construction

Choice of permanent molded-in colors to identify company or trade. Aluminum hats and caps available also in variety of colors.

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HARD BOILED

see our catalog in PLANT ENGINEERING FILE or write for copy

BULLARD

E. D. Bullard Company, 275 Eighth St., San Francisco

Around the Compass

—*From page 41*

into account the characteristic integration of the several functions in actual performance of field work. For example, while work connected with the Annual Inventory of Traffic Safety Activities is primarily a service to state and local officials, this inventory and others being developed by the Council are highly effective instruments for stimulating the development and improvement of state and community safety organizations.

Staff Training. Staff members of the department remained in Chicago following the Congress for one week's intensive training before returning to their respective districts. Training centered on local organization work which will be given major emphasis during coming months. A total of four weeks' training has now been given professional staff of the department.

School Inventory. During the past year, all chapters were invited to participate in the School Inventory, jointly conducted by the School and College Division and Field Service Department. Analyses of school safety programs resulting from the inventory are now being presented and discussed with school officials and chapter personnel in 55 cities.

Chapter Inventory. Questionnaires covering major phases of chapter operation have been distributed to all chapters and are now being returned to headquarters together with supporting documents. This project was unanimously approved by the Conference of Local Safety Organizations, and is considered an important step in the development of improved standards for the operation of local safety councils.

Chapters and Affiliated Councils as of December 1, 1955, were as follows:

Class "A" (Full-time manager) Chapters	71
Class "B" (Part-time manager) Chapters	9
Class "C" (Volunteer Administration) Chapters	4
Total	84

Class "D" Local Safety Council Members (Annual Income Under $3,600)	163
Class "C" Local Safety Council Members (Annual Income in Excess of $3,600)	4
Total Chapters and Local Safety Council Members	251

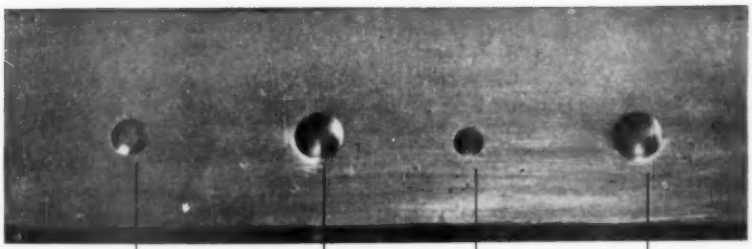
Volunteer Organizations. During recent months, there has been an accelerated interest in local safety organization. Since the first of 1955, a total of 71 inquiries on how to organize a community for safety or how to conduct a community safety program have been received primarily from communities of 5,000 to 50,000 population. During this period, there has been an average net gain of two new safety council memberships per month.

The department is working to retain and provide all possible assistance to members once they are enrolled, and during coming months a concerted effort will be made by field staff to expand this assistance.

Developments in Larger Communities. In addition to the two chapters chartered by the Board in October, the following may be noted:

Miami, Fla. Substantial progress has been made by the recently-organized Dade County Citizens Safety Council in establishing itself on a permanent basis, with a salaried staff. An executive director has been employed, and council headquarters have been established. A committee of leading citizens now is undertaking to raise an annual budget of $25,000.

Denver, Colo. On November 18, Mr. Dearborn addressed a meeting of 250 Denver leaders at a Chamber of Commerce luncheon. He outlined the need for greatly increasing the scope of the Denver Chapter's safety program; which would require participation as board members of many more top civic and business executives, strengthening the chapter's organizational structure and staff, and provision for adequate financial support. With assurance of full cooperation by Mayor Nicholson, a committee of distinguished citizens is being formed thus to help strengthen the Chapter and expand its community safety activities.



MARKS OF A KILLER!

BULLARD

Can you read the marks of potentially killing blows from a five pound ball dropped 8 feet on the crowns of aluminum safety hats? The depth of the dents on this aluminum bar indicates how much actual impact the wearer would feel on his head. See how deeply blows on competitive hats A, B and C mark the metal. Yet, the BULLARD aluminum hat hardly shows a mark. This is because BULLARD'S exclusive full floating headband distributes and absorbs the blow, taking the danger out of the impact. This, coupled with the girder-like strength of the BULLARD three-ribbed crown provides the greatest protection possible in aluminum hats and caps. **COMFORT**—They are just as light as your old felt hat. The cap weighs only 10 ounces. And with BULLARD'S exclusive universal headband you're always assured of a perfect fit. **COLOR**—Now you can have a choice of permanent non-fading colors in aluminum hats—yellow-gold, blue, grey, green, bronze and silver. Colors to identify trade or company.

BULLARD

E. D. BULLARD COMPANY, 275 Eighth Street, San Francisco, California

Projecting Your Message

By L. C. SMITH

PROJECTORS, overhead and opaque, can add something different to the safety training program and give it that new look. If your safety program seems to be at standstill you might try giving it new life by using this type of training aid. With careful planning you can make your safety meetings and other training more interesting and effective.

Still pictures, which are used in projectors of this type, are valuable in presenting material that does not involve motion. They have a decided advantage over motion pictures because they may be left on the screen for detailed study and explanation. For organizational charts and for presenting general and detailed information, such still pictures are excellent. The relative position of moving parts of machines and equipment may also be shown effectively. Where new employees are being indoctrinated into the safety program, or where ideas and materials are being presented at safety meetings, this type of training aid serves a definite need.

L. C. SMITH is a Senior Engineer, Industrial Department, National Safety Council.

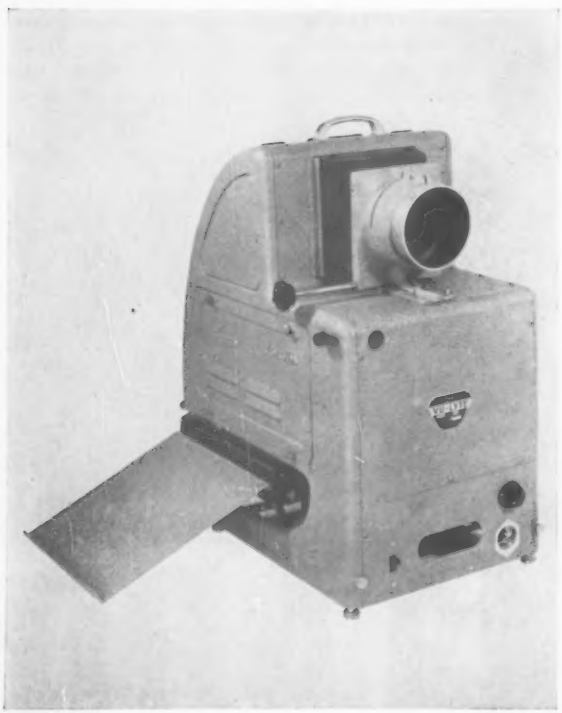
Overhead Projectors

The overhead projector is used for transparent projection. In transparent projection the picture, chart, or other information is prepared on a transparent material which allows the light to pass through and project the image on a screen. In opaque projection material such as a page of a book, magazine, poster, etc. is reflected on a screen.

In using the overhead projector the material is usually placed on transparencies. A number of companies specialize in making up these transparencies. Line drawings, glossy prints, or similar art work is used. Once the transparency is made it may be used repeatedly. Transparencies showing step-by-step procedures in assembling, disassembling, and servicing of equipment may be prepared. Sequences for operation of equipment may also be prepared. The transparencies are compact, easy to store, and easy to arrange for showing in any prearranged order.

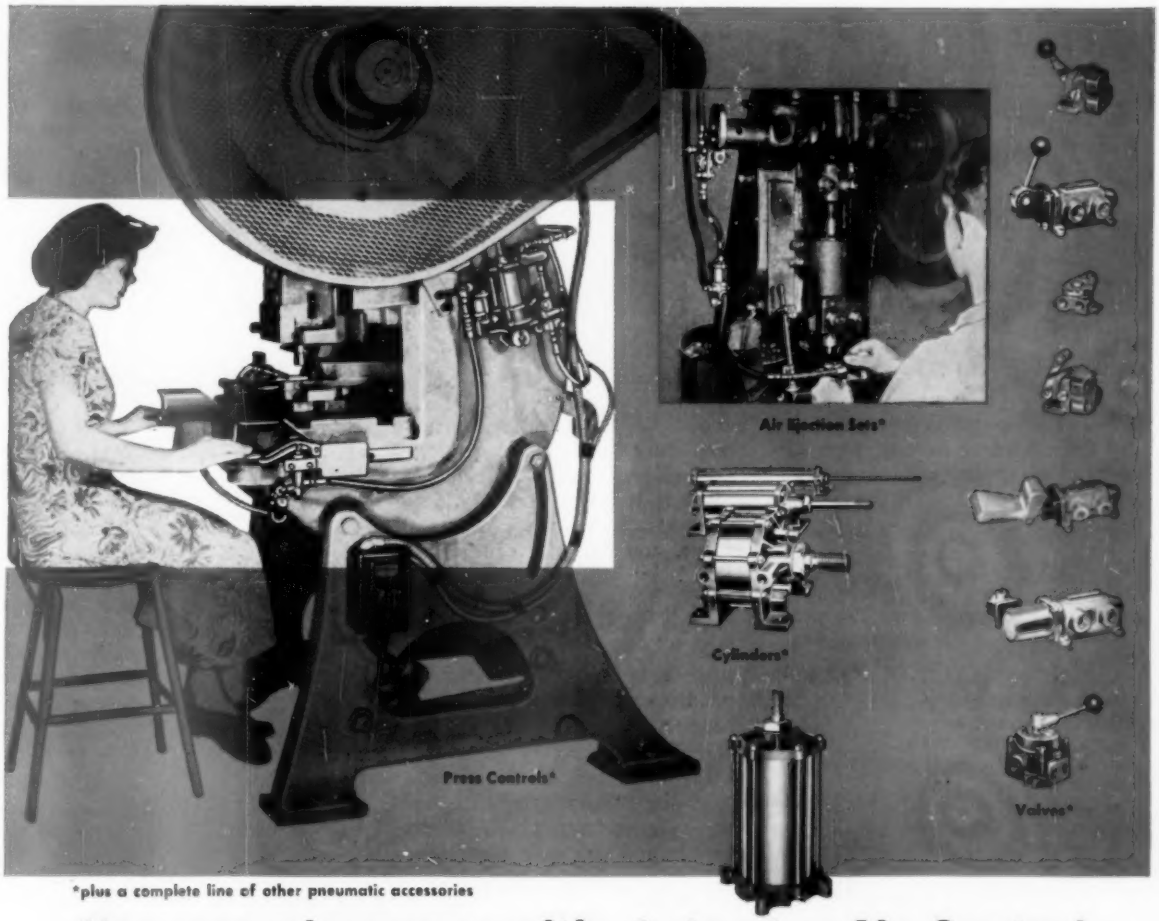
Most overhead projectors are

—*To page 105*



Opaque projector for projecting in true color any object that will reflect light, such as catalog pages, charts from magazines, etc. (Photos courtesy Charles Beseler Company)

Combination opaque and transparent projector. This model will accommodate 10 x 10 transparencies, 11 x 11 opaque copy, 3¼ x 4 slides, 2 x 2 slides, and 35 mm. filmstrips.



*plus a complete line of other pneumatic accessories

Harness air power with Schrader Air Control

On many machines, Schrader Control Sets will actually double your production by replacing tedious, time-wasting manual operations with swift, safe, sure movement by air. In other locations, Schrader Valves, Cylinders and other Air Line Accessories lift... lower... pull... push... clamp... clean off. They do many things so easily and quickly that you'll find it hard to believe you did without them before.

Take a look around your plant—keeping in mind where air power could do the job better. Then let us help you develop your ideas into neat, efficient air line hookups that will pay for themselves over and over again the first year. For specific information, write —or, if you prefer, fill out the convenient coupon below.

Schrader
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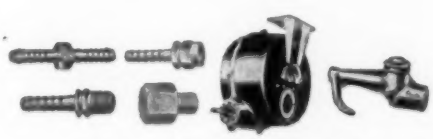
LEADERS IN AIR CONTROL SINCE 1844



The complete Schrader line of pneumatic accessories includes everything you need

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I am interested in more information on_____

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Company_____

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What Do You Know About Carbon Tet?

You've probably had more than one sniff without getting sick. How did it get its reputation?

By ROBERT M. FARRIER, M.D.

CARBON tetrachloride is a useful chemical in any type of work in which an excellent grease solvent is necessary. A few of its many uses are:

1. Cleaning photographic negatives;
2. Dry cleaning or spotting of clothes;
3. Typewriter cleaners;
4. Degreasing of any article for electroplating;
5. Cleaning of glassware;
6. Fire extinguishers;
7. Hobbies, such as:
   a) Collecting insects;
   b) Bringing out the water marks on stamps, etc.
8. Cleaning of motor parts which become covered with grease;
9. Cleaning of all types of electrical connections;
10. Paint thinners.

Any solvent capable of such wide use certainly must be good. In fact, if we should list the requirements of a "perfect" industrial solvent, we find that it should:

1. Be able to remove oil or grease completely;
2. Should evaporate completely and leave no residual;
3. Should not be expensive;
4. Should not be a hazard in itself.

We find that carbon tetrachloride is perfect in all respects—except No. 4. True, it is not a fire hazard (which in too many people's minds means it isn't "dangerous"), but it is a very serious hazard. In fact, the very characteristics which make it so valuable to industry and in the home are those which make it so very dangerous to man. It evaporates completely and mixes quickly and freely with the air in the area where it is being used. It has a marked affinity for fats and grease, and becomes quickly absorbed by fatty tissues of the body.

These tissues are primarily the brain, the liver, and fatty deposits under the skin. This, however, isn't the end of the trouble it can cause in the body. A short time after the symptoms appear in other parts, such as the brain or liver, the kidneys stop functioning—a symptom which is frequently and tragically overlooked until it has been present for several days.

Even counting the cases who die at once from the effects on the brain, and those who die within three or four days from acute liver failure, this kidney failure is the cause of death in about 90 per cent of the fatal cases.

From Bottle to Body

After speaking of these hazards, how does this potentially deadly liquid get from the bottle into the body? First, it can be poured in by the way of the mouth, and, as stupid as it may sound, it happens; either by accident or intent.

One case, which I helplessly watched die, had been given a quarter of a glass of carbon tetrachloride to drink by the ship's purser under the mistaken idea it was paragoric. At least two cases I can recall offhand, were the results of a merchant seaman's idea of a joke: he had served carbon tetrachloride as "gin" to his friends. I have never seen a man live who had swallowed over a teaspoonful of this "harmless" solvent.

Another method of entry, and by far the most common, is through the lungs in the inspired air. Carbon tetrachloride is not only very volatile, but mixes freely with air. When this air is drawn into the lungs, the carbon tetrachloride diffuses across the very thin separation between the air and the blood. In fact, it diffuses as easily as the air itself.

If the concentration is very high, the carbon tetrachloride acts on the brain very much like its kindred chemical compound, chloroform, and the person first becomes unconscious and then as the dose increases, he dies an anesthetic death. If a lesser concentration is present in the air, he may become light-headed, nauseated, develop a cough, and only later, completely lose his appetite, feel ill all over, become jaundiced, and then stop putting out urine and ultimately recover or die in about two weeks. Of course, with smaller exposures, any of these symptoms may be present to a lesser degree or there may be only a headache or no symptoms at all.

Modifying Factors

A third method for carbon tetrachloride to get into the body is through the skin. This method is usually combined with inspiration of polluted air but in itself causes a severe skin disorder by dissolving the fat out of the skin and leaving it dry and cracked.

It is quite obvious that carbon tetrachloride is not nearly so horrible a drug as I have painted it. Most persons have been in the presence of moderately high concentrations of carbon tetrachloride, and not been sick. Why, then, does this collection of ominous symptoms develop in enough people for me to be taking up your time? This is a problem which has caused considerable work in this field.

First, with a sufficiently high concentration in the air, or with enough taken by mouth, the person will die with no other "if's" and "ands!" However, as is frequently seen, two persons will be in the same room with the same concentration, one will die of car-

---

DR. ROBERT M. FARRIER is Senior Surgeon, U.S. Public Health Service, Washington, D.C. This article is adapted from a paper presented at the 43rd National Safety Congress, October 1955.

FREE!

SIGHT SAVER Cleaning Stations

. . . with your purchase of Sight Saver Tissues

Now you can promote eye safety, save time and improve workmanship by putting Sight Savers at everyone's fingertips. Spot new space-saving Sight Saver Cleaning Stations at handy locations throughout your plant, including offices and washrooms. They cost you nothing. You pay for the tissues only, and Sight Saver Cleaning Stations assure thrifty use of tissues because they dispense only one at a time. Make clean glasses a habit with Sight Savers, the genuine, silicone-treated tissues known and preferred by millions as the easiest, most efficient way to clean and polish eye glasses.

- **Compact, space-saving—over-all size only 3½ x 8″**
- **Easy to install—either screw or adhesive mounting**
- **Dispense just one ready-to-use, 3 x 7″ tissue at a time**
- **Easy to service, insert new packets of tissues as needed**
- **Dispense standard Sight Saver refill packet—No. 65**
- **Attractive steel construction, fool-proof mechanism**
- **Available in 3 colors—safety green, white, black**

Catalog	Color	Price
New Dispensers:		
No. 67	Black	Free with purchase of Sight Savers
No. 68	White	ditto
No. 69	Safety Green	ditto
Original Dispensers:		
No. 60	Black	$2.50 ea
No. 61	White	$2.50 ea
No. 62	Safety Green	$2.50 ea

Refill packets of Sight Savers for all models: No. 65—Packet of 800 Sight Saver tissues $1.45 ea. 10 packets per ctn., 10 ctn. per case

1955 AWARD
CHEMICAL ENGINEERING ACHIEVEMENT

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MAIL COUPON TODAY for Distributor Listing

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Please send me your listing of Safety Supply Houses handling SIGHT SAVER Cleaning Stations.

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bon tetrachloride poisoning, the other will not become ill. We have found one of these factors affecting its toxicity, which is illustrated by a case history from the records of the United States Public Health Service Hospital, Staten Island, N. Y.:

A Coast Guard Chief had been to a ship's party, where, along with others present, he had a few drinks. In the course of the evening, a plate of food was spilled on him by the waiter. His wife did not drink. The next morning, the Chief's wife proceeded to clean the spots off his uniform with about one ounce of carbon tetrachloride. She was in a closed room, with the windows closed since it was winter; this room being approximately 8 by 10 by 12 feet. The Chief was stretched out on the couch about half way across the room from his wife. As I mentioned, the wife did not become ill, but the Chief died 11 days later in complete kidney failure.

Lethal Concentrations

For some reason, only partly understood at present, alcohol alters the liver's ability to detoxify carbon tetrachloride so that a concentration which would not be dangerous without the exposure to alcohol, now becomes fatal. What are these dangerous concentrations? The latest figures, which are accepted by various safety groups, are as follows:

1. Twenty-five parts per million carbon tetrachloride or below, are considered safe for continuous breathing up to periods of eight hours. The older concept allowed 50 parts per million, but this is now considered too high, and the Department of Labor is at present attempting to lower the safe recommended standards to 10 parts per million.

2. Five thousand parts per million may be fatal after as short an exposure as five minutes, however, this is usually the delayed type, with death a week or 10 days after.

3. Twenty-four thousand parts per million for very short periods will be fatal after a period of illness or if exposure is of approximately 15 minutes, may be fatal immediately.

4. Exposures of 64,000 parts per million are fatal almost immediately.

These figures are in reference to persons who have not consumed alcohol in any form within the 24 hours of the exposure, who do not have chronic liver disease, or chronic kidney disease; in other words, a type of person best able to withstand this insult to the body. With any of the above conditions, the tolerated amounts will, of course, be proportionally reduced.

Exactly what do these vague figures of 25 parts per million mean? Let us consider the case of the Coast Guard Chief. About one ounce of carbon tetrachloride was used in a room of approximately 10 by 12 by 8 feet, or 860 cu. ft. This will give a concentration of approximately 250 parts per million, which is 10 times the presently accepted maximum safe concentration. In fact, to reach a concentration which would result in approximately 50 per cent deaths, after a four-hour exposure, in an area the size of the *S. S. United States*, would require only about three gallons of carbon tetrachloride. This is based on only two unlikely assumptions:

1. No one would go out on deck for longer than a half-hour;

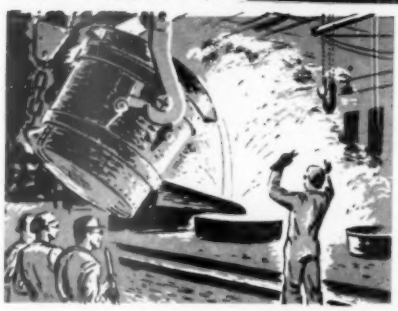
2. No one had been drinking.

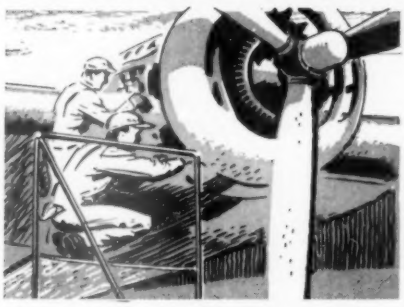
If, by chance, the passengers had been drinking, we could probably kill them off with only about two gallons. Actually, it takes only one-fourth of a teaspoonful of carbon tetrachloride, vaporized in a space 10 by 10 by 10 feet, to give a concentration of 25 parts per million, this being the maximum safe concentration to which a man can be continuously exposed.

Just what does this mean to you people, however? Carbon tetrachloride is known to be dangerous. It is not used widely aboard ships without "proper ventilation." In fact, I'm sure, as one shipping company assured me, a year or so ago, it is not used at all. Or is it? On passenger liners, the stewards and stewardesses do remove small spots, in small compartments, from passengers' clothes. Certain fire extinguishers on smaller vessels especially, are of the carbon tetrachloride type. And last, but by far not the least, source of exposure on merchant vessels, comes from the engineers. These men have found out from many years experience, that this is a very satisfactory solvent.

I have seen on ships notices prohibiting the bringing aboard of carbon tetrachloride. Under this notice, was the five-gallon jerry can from which my patient, with carbon tetrachloride poisoning, had gotten enough to thin some paint, and which had resulted in his complete kidney shut-down.

Wherever fire hazards are present . . .





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BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

Work clothes treated with "X-12" FLAME RETARDANT give better protection . . . more comfort . . . longer wear

ONLY FIRE CAN TELL THE DIFFERENCE between treated and untreated clothing when "X-12" is used. That's because there is no loss of tensile strength, hand, color or texture.

"X-12" penetrates the fabric completely, gives maximum protection against flame and afterglow. Since "X-12" doesn't seal the pores of work clothing, you get this protection without sacrificing the workers' comfort.

Either industrial or commercial laundries can apply "X-12" in an economical, one-step operation. And being a renewable-type flame retardant, it is reapplied after each washing.

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☐ Send me a list of commercial treaters in my area who apply "X-12"

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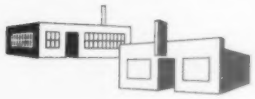
*Firm*_____

*Address*_____

*City*_____ *Zone*_____

*State*_____

SMALL BUSINESS and ASSOCIATIONS



By A. M. Baltzer and Robert D. Currie
Small Business Program Staff, National Safety Council

Safety Training in Action

With the cooperation of the San Jose (Calif.) City Fire Department, a west coast chapter of the *National Association of Refrigerated Warehouses, Inc.* recently showed how to produce real interest in preventing accidents with a fire-fighting demonstration at an ice company plant.

This was followed by a simulated ammonia break disaster in the engine room of the ice house. It took four minutes to get the "injured" into an ambulance.

Broken into small units and given a housekeeping check sheet, the group toured a warehouse and cold storage company plant, noting previously-prepared poor housekeeping examples. A discussion of each individual's check sheet and observations of the fire and disaster drills concluded the day's activities. It's hard to imagine that the participants would go home without additional knowledge of safe practices to integrate into their own operations.

It's this kind of activity, simple, yet so effective, that an association can recommend and promote among their members to help reduce accident losses.

Inexpensive But Effective

In commenting on our recommendations for association safety activity, H. T. McDermott, International Secretary of the *Refrigeration Service Engineers Society*, could not say enough about the value of a safety program to associations. He points out that in the society's membership of small individual operators and company employees the society's program is a "must."

He goes on to say, "Our safety program is not expensive but we believe it is having some effect." The program is tailored for members' needs and has been very effective in the following fields:

1. The "Abandoned Refrigerator" campaign, spearheaded by RSES for many years, is now supported by other influential groups.

2. The dissemination of information on serious accidents and special hazards offers practical help; several of the RSES chapters have succeeded in reducing the use of toxic cleaning solvents.

If this society, with no professional safety engineers, can get results, any association can.

An excellent example of what an association can do to help prevent industrial accidents. The National Lime Association has distributed more than 1,000 copies of this 44-page booklet to members and, through publicity, expects to distribute many more.

New Jersey Plan For Small Firms

A free accident prevention counseling service has been set up for small firms with the cooperation of the New Jersey Safety Council.

Briefly, the plan is this. The State Safety Council will set up a department devoted to this particular project. Aside from providing staff safety engineering services, the safety council will establish an organization of insurance company safety engineers as well as those from larger industrial firms. At the request of the smaller firms, individuals from this group will survey the small plant, identify hazards, and suggest practical solutions.

We think this is a good plan and hope that the small firms in New Jersey will take advantage of this counseling service.

Here is Safety In Small Business

In 1953 a hardware concern in Wisconsin was in pretty bad shape. An old attached shed at the rear was a fire hazard. Remains of a fire of several years ago were a hazard on the second floor. Housekeeping, fire extinguishers, and building conditions were such that the insurance engineer recommended cancellation of insurance unless conditions were corrected. The hazards and their control were discussed with the owner and recommendations were made for correction.

When the engineer called back in 1954 good progress had been made in correcting the hazardous situations.

In 1955, the engineer found everything in excellent condition throughout the entire building. A new addition had been completed, the second floor had been cleaned up, the basement was put in order, and the housekeeping was greatly improved throughout.

The engineer complimented the owner on the excellent condition of the premises. The owner then remarked, "I guess you engineers know what you're talking about. I finally took care of all you asked me to and had the Fire Rating Bureau come in a couple of months ago. As a result of their call the *fire rate was cut in half.* I could have saved hundreds of dollars if I had done it years ago."

PATENT PENDING

Model 175 —Medium size
Model 176 —Large size

WATCHEMOKET eye SAVERS

New "TUC-OVER"

FEATHERLIGHT SAFETY CLIP-ON

- **PROTECTION from IMPACT and GLARE** — Shatterproof lenses in unbreakable frame.
- **TWO SIZES FIT ALL PRESCRIPTION GLASSES FRAMES** — Plastic clips . . . never scratch lens or frame . . . hold "Tuc-Over" firmly in place on metal or plastic frames.
- **"FEATHERLIGHT"** — "TUC-OVERS" can be worn all day because the unbreakable frame is polyethylene . . . a tough, resilient plastic so light it floats.
- **SAFETY LENSES** — Shatterproof "Eye-Savers" Methacrylate lenses, .080" thick, are optically perfect to prevent eye-strain due to distortion . . . protect prescription lenses from breakage or pitting . . curved lens avoids contact with prescription lens.
- **REPLACEABLE LENSES** — "Eye-Savers" lenses can be changed by the wearer without tools . . . fit snugly in resilient plastic frame.
- **OVER-EYES PROTECTION** — Visor extends back to forehead . . . gives over-eyes protection from impact, dust, perspiration and glare.
- **HANDY TO USE • HANDY TO CARRY** — "TUC-OVERS" snap on or off in a jiffy . . . never break or bend if dropped . . . fold to the size of one lens . . . individually packed.
- **CHOICE of LENSES and FRAMES** — Lenses available in clear (C) and in light green (G-2) or medium green (G-4) and gold (Y)

Featherlight

Shatterproof Lenses

Will Not Pit

Visor Protection

Frames available in two sizes: Model 175 Medium 46mm lenses.
Model 176 Large 52mm lenses.

Frame colors: translucent white or green.

For details, see your Authorized Eye Savers Supplier or write direct

Quality Eye Protective Equipment ***Made by the Leaders in Plastics***

WATCHEMOKET OPTICAL CO., INC.

234 West Exchange St., PROVIDENCE 3, R. I. *In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26*

INSIDE N S C

A tour of the bright, busy home of safety conducted by Fred Lubet, Director, Membership Extension

DURING National Safety Congress week more than 200 Congress delegates made the trek north on Michigan Avenue from the Conrad Hilton to NSC headquarters. They were perhaps unimpressed—or even dubious—when they sighted the 425 North Michigan building, which squats stolidly on the very bank of the Chicago River. The building looks like a warehouse, which in fact it was until 1946 when it was remodelled to accommodate offices.

But as unimpressive as Council headquarters are on the outside, first-time visitors invariably react with a big "Wow" or similar expression of surprise and approval when they see headquarters on the inside.

NSC headquarters aren't swank or luxurious. But they are impressive because of their size and because of the complete and modern facilities. The layout connotes a big organization, doing a big and complex job, and utilizing all modern business techniques and equipment.

Council headquarters occupy the entire fifth floor and half the fourth floor, a total of 100,000 square feet. The fourth-floor area (more than 32,000 square feet) was recently taken over, principally to expand the stock and shipping operations. But at the same time this additional space allowed all other operations more elbow room.

Since NSC moved to its present headquarters in 1950 the staff has increased from 250 people to more than 350, with the result that some departments were pretty tightly squeezed. (This may or may not have some bearing on the fact that there is a high incidence of boy-meets-girl, boy-marries-girl at the National Safety Council.)

In addition to being big, Council offices are bright. Last April 600 double-tube fluorescent light fixtures (complete with diffusers) were installed—there are a total of more than 800 fluorescent fixtures in all—increasing the footcandles at desk level from 38 to a whopping big 50. Lighting engineers inform us that our stock and shipping operations are among the best illuminated of their type anywhere. Originally the basic wall color was a rather garish yellow, but two years ago they were redone in—you guessed it—green.

You might guess that ventilation is a problem in a warehouse-turned-office-building. It is. Windows line the outside walls of the building but they are inadequate as a fresh air source. The problem is solved by means of six fan rooms which deliver washed and heated (but never cooled) air at the rate of six complete changes an hour. No one shivers at the Council in the wintertime, but everyone sweats in the summertime.

The summers of 1954 and 1955 were especially hot ones in Chicago as they were elsewhere in the U. S. On several occasions the office temperature and humidity rose to the point where productive work wasn't possible and the offices closed early. The same situation occurred in most other non-air-conditioned Chicago offices where, during the hottest spells, work practically came to a standstill.

NSC furniture is functional but not necessarily modern or pretty. About one-half of the 300 desks are new, all-metal models. The remainder are wooden models which are scarred and scuffed but still serviceable.

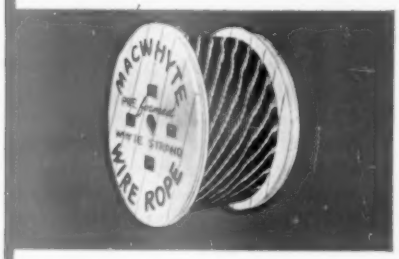
While the furniture certainly isn't stand-outishly modern, NSC office equipment is. None of the more than 100 dictating machines is more than three years old. Almost all the 180 typewriters are post-war models. In addition, NSC has a battery of automatic electric typewriters which turn out 40 letters an hour, modern duplicat-

—To page 88

More than 200 visitors registered at Council headquarters during the National Safety Congress. Receptionist Nancy Nelson welcomes Roe Boone, O. B. Wyndham and L. L. Roberts, all of Procter & Gamble.

Artists at work have a never failing fascination for visitors. M. R. Dunn, U. S. Rubber Co., Winnsboro, S. C., watches Ralph Moses at work on a poster. (Editors and writers aren't nearly so interesting.)

Many Congress delegates took advantage of the opportunity to visit the Council's library. Maj. R. A. Campbell, coordinator of the State of Illinois Division of Traffic Safety is doing some research.



Prompt Service

SLINGS · WIRE ROPE · ASSEMBLIES

Your wire rope needs, whether they be for Round-Braided Slings, Cable Assemblies, or Wire Rope, are given prompt service by Macwhyte Company distributors.

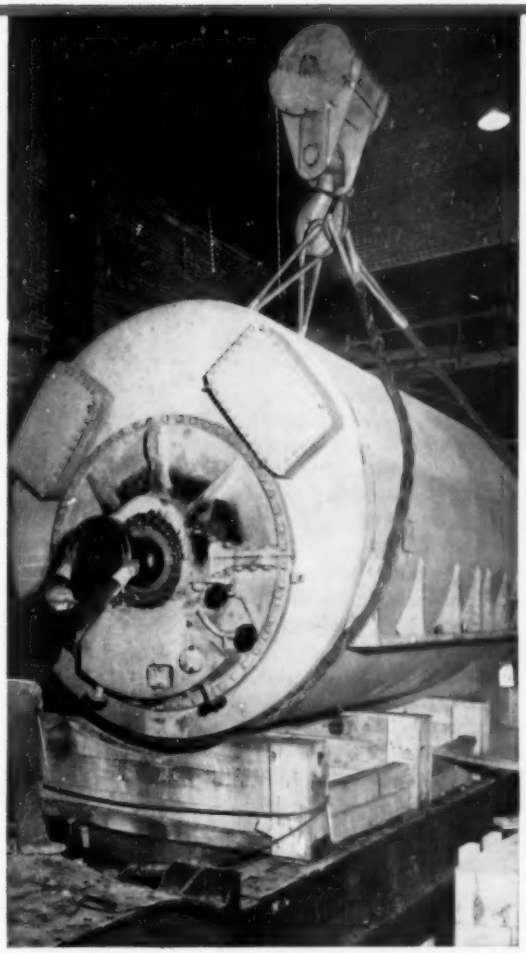
Macwhyte manufactures a wide variety of sizes and types to provide materials best suited to your needs.

MACWHYTE

SLINGS · WIRE ROPE · ASSEMBLIES

Macwhyte Company, 2902 Fourteenth Avenue
Kenosha, Wisconsin

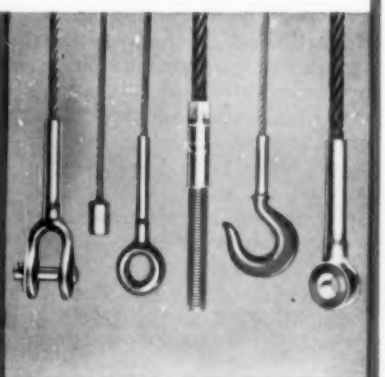
Mill depots: New York 4, 35 Water Street
Pittsburgh 19, 704 Second Avenue
Chicago 6, 228 So. Desplaines Street
St. Paul 14, 2356 Hampden Avenue
Ft. Worth 1, P. O. Box 605
Portland 9, 1603 N. W. 14th Avenue
Seattle 4, 87 Holgate Street
San Francisco 7, 188 King Street
Los Angeles 21, 2035 Sacramento



ROUND-BRAIDED SLINGS: Two Macwhyte ATLAS Round-Braided Slings handling 125-ton generator unit. These are Type No. 1 Slings made of alternate left and right lay wire rope, braided for light weight, maximum flexibility, and safety.

SLINGS: Macwhyte makes a wide range of sizes and types of Braided and Single-Part wire rope slings. Custom designs are made to meet special needs. For information, ask for Catalog S-8.

WIRE ROPE: There is a right rope for each equipment need. Catalog G-16 lists all classifications and sizes, also included is general information on handling and use of wire rope.



ASSEMBLIES: Macwhyte "Safe-Lock" Wire Rope Assemblies are made in a wide range of sizes, with fittings permanently attached to one or both ends. Many standard types are listed in Catalog No. 5201.

New Standards for Vertical Transportation

The American Standard Safety Code for Elevators, Escalators and Dumbwaiters

By G. P. KEOGH

JOKES about the man who fell down the elevator shaft are becoming obsolete. So may the not-so-funny falls which really do occur when the shaft is open.

The American Standard Safety Code for Elevators, Escalators, and Dumbwaiters provides for a safety interlocking feature which keeps the shaft door closed unless the elevator car is stopped at that floor.

The fifth edition of this American Standard has been approved by the American Standards Association and is just off the press.

Work on this American Standard began in 1922 at the request of the American Society of Mechanical Engineers, which wanted a nationally-accepted elevator code. The American Standards Association approved the initiation of this project and assigned sponsorship of the work to the ASME, American Institute of Architects, and the National Bureau of Standards.

The committee which actually developed the code represented all parties at interest—elevator manufacturers, insurance carriers, government (federal, state, and local), building owners and managers, employees, public interest groups, technical and engineering societies, and others.

Always watching for improvements in manufacturing and safety practice, the committee brought the code up to date in 1931, 1937, 1945, and in 1955.

The latest revision is the combined work of 22 separate subcommittees consisting of from four to 20 members each, and representing groups especially interested and qualified to draft regulations in the specific fields to which they were assigned. The total membership of these subcommittees was 150.

The new code was prepared for use, first, by the architect and the designer and installer of equipment; second, by state and municipal enforcing authorities as a basis for regulations, and third, by insurance inspectors.

Working platforms on tops of cars are prohibited by the new code. The code says "NO" also to ventilating fans mounted inside the elevator car on brackets; to apparatus and equipment inside the car which is not used in its operation; and to all rope, rod, wheel, crank, or lever-operating devices. It also prohibits the use of rail lubricants which will reduce the holding power of car safety devices.

Modern elevators are foolproof and drunkproof. The American Standard Safety Code for Elevators, Escalators, and Dumbwaiters provides a special interlocking feature which won't allow the hoistway door to be opened until the elevator stops on your floor.

One of the most important sections in the code—that covering alterations, repairs, and replacements of existing equipment—is entirely new. The American Standard code lists 22 alterations defined as those of major importance and specifies which rules must be applied to each alteration as it is made.

For alterations not listed as major, the rules ask that only those alterations directly concerned with public safety conform to the code.

Repairs and replacements of damaged, broken, and worn parts necessary to normal maintenance are permitted to be made with parts of equivalent material, strength, and design. Repair of damaged parts, necessary to support the installation, and which are under tension or other stress, may not be done by welding.

The committee felt that improvements and alterations to existing equipment should be encouraged, as in nearly all cases they could be made so as to increase safety. They ask that the new equipment used in improvements and alterations conform to the rules which apply to new elevators.

For instance, one state code requires that if a worn-out elevator machine is replaced with a new machine the whole installation, including the hoistway, pit, overhead clearance, hoistway enclosures, and doors must conform to the rules of the installation. The result of this drastic requirement is that owners continue to make repair on repair and service old elevators which should be decommissioned.

In such a case, the American Standard would say that the worn-out machine could be replaced with a new machine, but that the new machine must be of a type permitted by the revised code unless the machine replaced were an uncounterweighted drum machine of the limited rise and

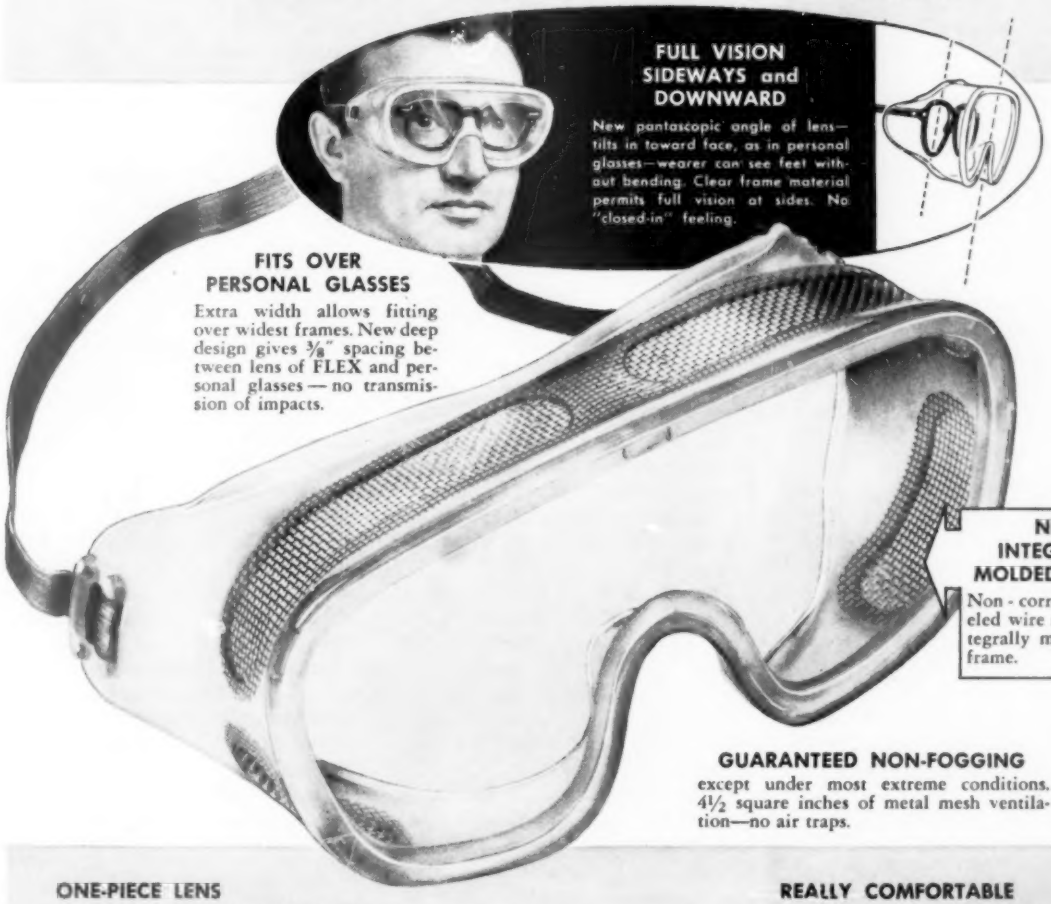
—*To page 111*

G. P. KEOGH is Chief, Industrial Code Unit, New York State Board of Standards and Appeals. He is Chairman of ASA Sectional Committee on Elevators, Escalators and Dumbwaiters, A17, representing the International Association of Governmental Labor Officials.

Metal Screen Ventilation . . .
Advanced Protective Design . . .
Correct Pantascopic Angle Vision

IN USSSCO's *New* AIRFLOW SAF-I-FLEX

SERIES 29



FULL VISION SIDEWAYS and DOWNWARD

New pantascopic angle of lens—tilts in toward face, as in personal glasses—wearer can see feet without bending. Clear frame material permits full vision at sides. No "closed-in" feeling.

FITS OVER PERSONAL GLASSES

Extra width allows fitting over widest frames. New deep design gives ⅜" spacing between lens of FLEX and personal glasses — no transmission of impacts.

NEW INTEGRALLY MOLDED SCREEN

Non-corrosive nickeled wire mesh is integrally molded into frame.

GUARANTEED NON-FOGGING

except under most extreme conditions. 4½ square inches of metal mesh ventilation—no air traps.

ONE-PIECE LENS

in clear or green optical plastic. Meets Federal specifications for optical qualities, impact, and piercing resistance.

QUICK LENS REPLACEMENT

without tools. Locks securely into frame at 7 points.

REALLY COMFORTABLE

Soft, flexible, lightweight frame of vinyl plastic, with rolled edges. Molds to natural contours of face. Cool, fog-free ventilation.

Pioneers in Modern Industrial Eye Wear

USSSCO products are developed, manufactured, and sold direct to the user by the United States Safety Service Co., through a staff of trained, full-time service engineers. Look in your phone book Yellow Pages for nearest sales office, or write us in Kansas City.

UNITED STATES SAFETY SERVICE CO.

BRANCHES IN PRINCIPAL INDUSTRIAL CITIES

Div. A-1, KANSAS CITY 6, MISSOURI

IN CANADA: PARMELEE, LTD., TORONTO & MONTREAL

CONSULTATION CORNER

Conducted by George MacDonald
Senior Consulting Engineer, Industrial Department, NSC

Inquiries on problems relating to accident prevention and occupational hygiene are invited by the National Safety Council. Inquiries are answered by mail, a few topics of general interest being selected for publication

Fusible Link for Fire Door

Question. A swinging fire door leading into our radio assembly room has a standard door check to close it automatically without banging. Our employees repeatedly keep this door open by tying it or by inserting a wedge at the bottom, claiming they need ventilation.

Our insurance inspector and the fire inspector have called this violation to our attention several times. We have discussed this with employees, but every so often we find the door tied or blocked open again.

Is there any way we can correct the situation?

Answer. Two methods can be used to lick this problem. The first is one which should have been used originally: install a regular sliding fire door hung on an inclined track and equipped with a fusible link which melts in case of a temperature rise. The separated link allows the door to slide to a closed position automatically. This probably would be a costly installation at the present time since it might involve structural changes.

The second method is one that was submitted to our library and can be adapted to your present door. The original door including the door check is used; however, a ¾-in. eye-bolt is fastened to the door of the door frame, with the eye opened up about ½ in. The stock of the bolt is ⅜ in.—about the same size as the hole in the fire link. Another ¾-in. eye-bolt is fastened in the middle of the door at the top. A ¾-in. rod of suitable length is looped through the eye-bolt on the door frame and the other end of the rod has a loop through which a fire link is attached.

The fire link is placed through the eye-bolt in the door, holding the door open. In case of fire, the link melts and the door closes.

When this gadget is not in use, it can be clipped to the fire door. Where glass doors are involved a 10-cent rubber ball can be pierced by the rod to keep it from going through the window when it drops.

The original fire door installation with the door check which allows it to close and the approved fire link should meet with the approval of your inspectors.

The accompanying photograph of the device illustrates the construction and operation.

After this installation has been made I recommend you call your insurance inspector and while he is examining it, hold a lighted match under the fusible link so that it will melt and allow the door to close.

You mention that the employees' reason for blocking the door open was a need for ventilation. Perhaps you should consider a ventilating system within the room using fans or louvres. This might solve the problem and you could leave the door closed at all times.

Ice and Snow Removal

Question. Every year we have our share of accidents from slips and falls because of ice and snow on our loading platforms. Are you acquainted with the electrical heating cables used to melt snow and ice? What are the electrical hazards involved and what other common methods can you suggest?

Answer. When flexible heating cable was introduced we studied it very carefully for the safety aspects and its application in industry.

Data Sheet D-402, *Removal of Ice and Snow in Industry*, discusses various methods of removing snow and ice manually, using chemical agents, hot water, steam, and heating elements in buried pipes. It also covers flexible electric heating cable that can be buried, wrapped around pipes, or laid directly on the ice and snow-covered surfaces.

Data Sheet D-402 includes several illustrations showing actual use. Also available are two safety instruction cards for distribution to employees to acquaint them with safe practices when removing icicles and using chemicals and abrasives.

Mysterious Acetylene Fire

Question. Our field office has notified us of a fire which occurred in a small shelter in our terminal storage area. The shelter is used to protect oxygen and acetylene bottles and foam compound from the heat of the sun.

With air temperature at 82 F., we discovered flames coming from one of the acetylene bottles. The fire was quickly extinguished with dry chemicals. We found that welders had done some work

LOWERY *Slings*
LEAD THE FIELD IN SAFETY AND PERFORMANCE

Here's proof you can see
IN A SLING YOU CAN TRUST

This is an actual untouched photograph of Lowery Brothers Tapered swage fitting that is used on Lowery Brothers slings to allow free passage under and around a load to be hoisted.

It is practically impossible to hook or snag this swage fitting on anything. This is due to the exclusive taper on both ends of the swage fitting.

By using Lowery Brothers swaged slings you are eliminating the hazards of hand punctures and scratches due to the fact that the hazards are covered with our swage fitting. This allows your workmen to handle the sling freely without worrying about their hands being injured.

Why you should use a wire core sling for economy and for strength:

Wire rope slings made from 6 x 19 or 6 x 37 wire core will give approximately 7% additional strength to the sling. As you know, hemp core is actually a filler and lubricator, but so is the wire core . . . and wire core will hold its shape and will not crush nor break. The bearing point is where slings usually flatten. The hemp core gives way and protrudes from between the strands. Then the strands separate and loosen and only three strands will take all the wear, thus shortening the service of your slings.

WIRE ROPE AND LOWERY SWAGE FORM SOLID STEEL MASS OF MAXIMUM STRENGTH

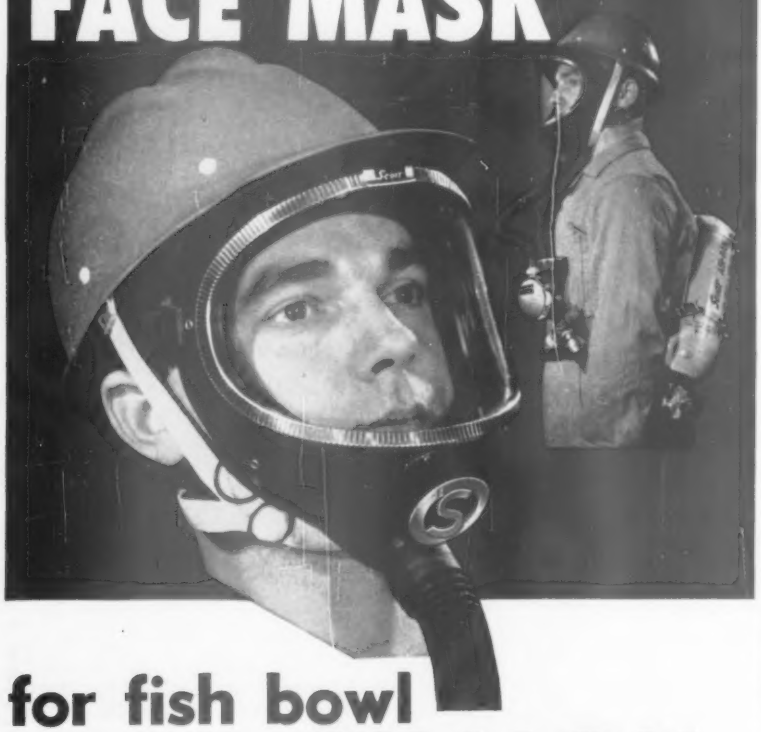
Examine the cut below, showing a Lowery Brothers swage loop or eye that has been cut into. You will note the solid mass of steel. The wire core also is in the swage, assuring you of the finest sling you can buy at any price. So get the best . . . get Lowery Brothers slings.

Your inquiries are welcome. All orders shipped within twenty four hours from our plant nearest to you.

LOWERY BROTHERS, INC. 9332 SO. ANTHONY AVE., CHICAGO 17, ILL.

CHICAGO • NEW ORLEANS • PORTLAND

SCOTTORAMIC FACE MASK



for fish bowl VISION

in smoke or toxic gases!

Now industrial firefighters, emergency crews and men who work in hazardous atmosphere can enjoy a new standard of face mask comfort and vision. The new Scottoramic face mask with its "wrap around windshield" safety plastic lens gives the wearer an entirely new feeling of mask freedom.

It eliminates any feeling of claustrophobia or fatigue due to working with hampered vision.

Men work faster, more accurately and are comfortable for longer periods of time with the new Scottoramic full-vision face mask.

It may be worn over some types of glasses. Double-lip seal is positive assurance against smoke and toxic gases reaching the wearer. Non-fogging is assured by the circular air-washing action of the cool air.

SINCE 1932

Write today for complete information.

SAFETY EQUIPMENT DIVISION

SCOTT AVIATION CORP.

211 ERIE STREET LANCASTER, N. Y.

Canada: Safety Supply Co., Toronto — Branches in principal cities
Export: Southern Oxygen Co., 15 West 57th Street, New York 19, New York

on the shelter two days earlier but, to the best of our knowledge, no one had been near the shelter since that time.

After consulting all our reference material and making inquiries of the welders and warehouse men, we have been unable to determine the cause of the fire. Could it have been caused by gas escaping from a poor-fitting fuse plug and the presence of grease or oil in the area adjoining the plug?

We would appreciate any explanation you can offer and any precautions we should take to prevent a recurrence.

Answer. Gas escaping from the fitting might have been responsible. It would expand, thereby creating static electricity. In a hot, dry climate it is relatively easy to create a static spark. Probably a static spark was generated and set off the escaping acetylene. I doubt if the leak was caused by a loose fuse plug.

In a fire such as this, unless you can determine why the leak is there and correct it, you should let the cylinder burn itself out. Otherwise, the leak will continue and create an explosive atmosphere. Remove the defective cylinder to avoid heating up or endangering the other containers.

Vibrating Mirrors

Question. Our plant has mirrors at entrances into aisles and at blind corners for our lift truck and pedestrian traffic. These have not been too successful because the vibration from our large presses causes the mirrors to vibrate, distorting the image and constantly changing the angle at which the mirror is set. Keeping mirrors clean from plant dust is also a problem.

We have tried the polished metal and glass mirrors and have had trouble with both. Some of our glass mirrors have been resilvered and we found this to be costly. Is there any other method we can use to protect our entrances and blind corners?

Answer. From the tone of your letter I feel that you really want

—To page 151

Safety CAP has narrow brim at sides and back, visor in front. Weight 12-1/4 oz.

Safety HAT has full brim for greater all around protection. Weight 14 oz. Chinstrap is optional.

Outside, they're FIBER GLASS

Compression molded of glass fibers and polyester resins, Jackson Safety Hats and Caps are made of the same miraculous substance that's sweeping the country in countless new applications. Combining lightness and resilience with toughness and strength, fiber glass provides the strongest protection per unit of weight. Strong, two-way ribbing on the crown, and heavy edges along the brim resist impact from all sides.

—in your choice of COLORS

For indentification of workers by trade, Jackson offers Safety Hats and Caps in grey, white, yellow, orange, green, blue and brown. Other colors may be furnished on quantity orders.

Inside, a Jackson PLUS VALUE

The headband of extruded plastic, far firmer than the usual headband materials, is durable, holds its shape, and gives better fit. It allows easy, yet positive individual fitting, is clearly marked off in hat sizes. A cork-lined sweatband adds comfort, is easy to replace.

Hammock straps of webbing give adjustable support on top of the head and provide the required safe distance between head and hat shell.

Headband and hammock straps button to the inside of the hat shell, leave ample room for all around ventilation.

—tested for your protection

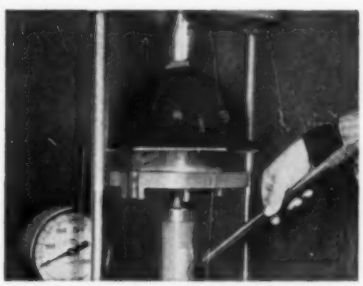
They exceed the requirements of Federal Specification GGG-H-142b when tested for *electrical resistance, impact, penetration, flammability,* and *water absorption.* Their *weight* is well below the specified limit. Two of these tests are described at the right.

ACCESSORIES...

Chinstrap of adjustable elastic webbing (left) and "Winterizers": *Colcap* to protect the skull, *Frigicap* to protect the ears as well (right).

Impact Test • Here, eight-pound ball, dropped five feet, measures the force of impact transmitted to the head of the wearer (here simulated by a wooden headform). Jackson Safety Hats withstand this test well within the specified limit.

Penetration Test • Pointed steel 16-oz. plumb bob, dropped 10 feet squarely onto center of hat crown, causes only slight penetration, well below the specified maximum. No damage is caused to headband and crown straps, nor to the wooden headform supporting the hat in this test.



Slow Torture • Used regularly for quality control and close scrutiny of every component is Jackson's own method of testing under hydraulic pressure. It proves Jackson Safety Hat superiority under *sustained loads,* hazards present in many occupations.

JACKSON
PRODUCTS, INC.
WARREN · MICHIGAN

Jackson Products, makers of arc-welding helmets, gas-welding goggles, grinding goggles and face shields, offers these combinations:

SAFETY-CAP-AND-HELMETS • SAFETY-CAP-AND-GOGGLES • SAFETY-HAT-AND-FACE-SHIELDS

Sold through Safety and Welding Supply Dealers throughout the World

New York Sets Standards For Radiation Exposure

REGULATIONS TO PROTECT workers in New York State from on-the-job hazards of atomic energy and other radiation have been adopted by the Board of Standards and Appeals and will become effective December 15. The new regulations, to be enforced by the safety and industrial hygiene staffs of the New York State Department of Labor, constitute Industrial Code Rule No. 38.

"This is the first comprehensive state safety code in this field, and New York is the first in the nation to have a code which is in complete conformity with recent AEC safety regulations," Rear Admiral William S. Maxwell (U.S.N. retired), chairman of the Board of Standards and Appeals, declared.

"Approximately 150,000 New York State workers are employed in industries where exposure to the effects of industrial radiation is possible," Admiral Maxwell continued. "The rule, as adopted, covers all phases of the field, including the industrial use of isotopes."

The adoption of the code is the culmination of a two-year study by a 26-man Labor Department advisory committee, composed of labor, management, medical, scientific and government representatives. The code went through 12 different drafts before being considered by the board, and was the subject of seven public hearings before that body preceding final adoption.

The State Health Department recently adopted regulations in its Sanitary Code covering protection of personnel in hospitals, dental offices and similiar establishments. The two codes will complement each other to cover most peacetime uses of radiation.

Significant provisions of the code are contained in sections on registration, control of exposure, dose limits, installation surveys, keeping of records, personnel monitoring, caution labels and signs.

All installations and mobile services must be registered. This will enable the Labor Department to know the location, type, degree of hazard, and ownership of every radiation source in the state. Existing installations must be registered by March 15.

Each installation must have a radiation safety supervisor and a radiation safety officer who is designated by the owner. Workers exposed to radiation must be trained by a supervisor and be completely informed of hazards in installations. Minors under 18 will not be permitted to work in areas of possible hazard.

The owner of an installation is given the option of two methods of determining dose limits—on a weekly basis or on a quarter-year dose limit basis. When a person is exposed to greater than the specified limits, the employer shall report the fact to the commissioner. The rule takes effect where any employee may be exposed to one-tenth of the permissible doses as set forth in the code.

The radiation officer will be required to make a survey evaluating the hazard when conditions in the installations change, or more often. Proper detection and measuring instruments must be readily available.

Any employee who in any way receives 25 per cent or more of the radiation dose limit must be supplied with and must use appropriate personnel monitoring equipment. These may be dosimeters or film badges or other similar devices.

The code also sets up a requirement for precaution signs or labelling.

Safety Honors for the Post Office

Postmaster General Arthur E. Summerfield (left) accepts the National Safety Council's Special Mention Award in recognition of the contributions made to community traffic safety by the Post Office Department during 1954. The presentation was made by Arthur E. Stoddard, president of the Union Pacific Railroad and a Trustee of the National Safety Council.

The ceremony took place in the Postmaster General's reception room at the Post Office Department before a large group of guests representing national and local safety organizations, the Postmaster General's staff, and other department officials.

Another NEW Product

Pulmosan STOPS FOG

The Only All-Disposable Goggle Anti-Fogging & Cleaning Station!

LOWEST INITIAL COST!

NO MAINTENANCE COST!

NO REFILLS TO BUY!

Maintenance of the "usual" type of goggle cleaning station is expensive. After all, someone in your plant spends *time* adding tissues or fluid as one or the other runs out. It takes time . . . time is money! Start saving right now by installing Pulmosan "STOPS-FOG" Goggle Anti-Fogging and Cleaning Stations. Each station is a self-contained, low priced unit that is thrown-away when tissues and liquid are exhausted. You give your workers an efficient anti-fog and cleaner station . . . you put an end to expensive refills and time consuming, wasteful housekeeping!

$1.50 each station

$1.35 ea. 1 to 3 cartons—12 Stations to carton

$1.25 ea. 3 or more cartons

At this low price you can afford to have many more goggle anti-fogging and cleaning stations throughout your plant.

EACH STATION CONTAINS:

- Enough "STOPS-FOG" Solution and Tissues for 600 to 1000 applications.
- Ultra-effective combination anti-fogging and cleaning solution in unbreakable spray container. (only spray head is visible)
- Solution and tissues always "in balance". One won't run out before the other.
- Ample space provided atop station for used tissues.
- Simple wall bracket holds entire station. New stations hook right on in seconds.
- Highest quality lens tissues are strong, absorbent, lint-free. Dispense from below.

PULMOSAN STOPS Eye Accidents

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Sterling 9-0200
1007 Washington Ave., St. Louis, Mo.
Chestnut 1-9393

CONGRESS QUOTES

Practical thoughts from sessions of the 43rd National Safety Congress

Safer at Home

Industrial workers have fewer accidents at home than white-collar workers do.

That is because safety education on the job aids the worker in avoiding accidents at home.

Perhaps then the worker can help us make the home the safe place it ought to be.

Last year more than four million of the nine million serious injuries in the U. S. took place in the sanctity of the home. But only 20 per cent of the injuries happened to industrial workers in their homes because of safety lessons workers learned while at work.

—J. S. Queener, Manager, Safety and Fire Protection Div., E. I. du Pont de Nemours & Co. (Home)

Develop Brainpower

Industry should use workers' brains instead of their brawn in handling materials.

Our company first selected and trained operators of all power materials handling equipment. Tests were given and only licensed personnel were permitted to operate trucks, cranes and other power equipment.

Results of this program were practically instantaneous. Maintenance costs dropped, accidents decreased, and actual movement of materials increased.

The brain of the man is far more important to us than his brawn.

—H. S. Simpson, Manager, Safety Division, Caterpillar Tractor Co. (Food)

Is the Boss Convinced?

Have you had trouble lately selling your boss on your big ideas?

Here are the methods to use in trying to get top management behind a plan:

1 When you go to work on management, remember it's made up of people who are highly figure-conscious. Give the boss all the dope—in terms of figures—on results expected and what goes into getting the job done.

2. Management wants to do something about your problem but it needs and wants help. Give clear-cut recommendations and suggestions which lead to direct action.

3. Detail is essential but you can't expect a top executive to spend a lot of time wading through them. Give the over-all picture and indicate how the details will be handled.

4. A report to a top executive must be primarily a brief, concise document pointing out in sharp relief the major objectives to be achieved. A most important element in such a report is a timetable for action—definite dates for getting things done.

5. Go on record with the boss as to what your objective is, why you think it can be done and what your plan of action is.

—Howard E. Whitaker, President, Mead Corp. (Pulp & Paper)

Protecting City Workers

Pipes and wrenches aren't the only items a typical municipal water department has to worry about. There's a surprisingly large amount of safety gear, also.

The Los Angeles Department of Water and Power made over 175 purchases of safety equipment in 1954. Cost of these items amounted to $22,894.

Among the items the department regularly buys for employee protection are rubber boots, safety goggles, toe and foot guards, hard hats, gas and dust masks, and safety shoes.

For public protection at work sites, barricade boards, horses, and traffic cones must also be purchased. In addition, there are red flags, signs, flares, lanterns, and flashing lights.

—James E. Hickman, Safety Engineer, Los Angeles Dept. of Water and Power. (Public Utilities)

Competing for Attention

The $64,000 question is how to make safety compete with "The $64,000 Question."

Human nature being what it is, meetings must be interesting and attractive enough to compete with modern diversions such as ball games, TV, picture shows, fishing, and all other phases of the average community life.

The success of any meeting depends on the leader, and the subject material must be built around subjects common to the average worker.

—O. M. Cutright, Production Foreman, Union Producing Co. (Petroleum)

Prevention Isn't News

The real measure of safety is in the number of people who didn't get hurt.

Humanitarian principles are the main motivation behind any program of accident prevention, and the lack of statistics to show on a graph is a real measure of a safety program.

The better the job you do, the less you have to show for it. Nothing happens. No one gets hurt.

—A. J. Schroder, Vice-President, Scott Paper Co. (Pulp and Paper)

Life on River Craft

The workhorses of inland waterways—towboats and barges—are now coming up in the marine world.

New diesel towboats have as much as 4,800 horsepower, and can handle tows up to 1,200 feet long with cargoes of as much as

—To page 137

WHAT HAPPENS NEXT?

If management has been wise, a fire tragedy will be stopped before it starts...if not, in 20 minutes extensive destruction and total loss could readily be the result.

First-rate fire protection is essential to the continued success of any business. With C-O-TWO Smoke or Heat Fire Detecting Systems, plus C-O-TWO High Pressure or Low Pressure Carbon Dioxide Type Fire Extinguishing Systems, as well as PYRENE Air Foam Type Fire Extinguishing Systems for specific outdoor locations, your plant can have fast, positive round-the-clock fire watchman service simultaneously at each fire hazard point . . . a fire tragedy is stopped before it starts.

Furthermore, there is a personal sense of responsibility inherent with PYRENE—C-O-TWO Fire Protection Engineers that assures you of fully adequate firesafety . . . a definite plus in your behalf. Whether it's fire detecting or fire extinguishing . . . portables or built-in systems . . . PYRENE—C-O-TWO means top quality backed by experienced engineering that results in operating superiority for you at all times.

Act now . . . don't take unnecessary chances with your investment any longer . . . the extensive experience of PYRENE—C-O-TWO over the years is at your disposal without obligation. Remember . . . a plant-wide fire protection survey skillfully executed today could be the means for greater profits tomorrow.

Pyrene

PYRENE — C-O-TWO

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Sales and Service in the Principal Cities of United States and Canada

C-O-TWO

COMPLETE FIRE PROTECTION

portable fire extinguishers . . . built-in fire detecting and fire extinguishing systems

CARBON DIOXIDE • DRY CHEMICAL • VAPORIZING LIQUID • SODA-ACID • WATER • CHEMICAL FOAM • AIR FOAM

Behind the Scenes

By DOROTHY SHANE

Just when safety was staggering under war-time blows, the company lost its safety director. Then the nurse took over . . .

WHEN I started with C. D. Johnson as an industrial nurse in 1944 the company had an active safety program under the supervision of a full-time safety engineer.

In October of that year I began serving as a committee member and secretary of the logging and the mill safety meetings.

Late in 1945 the safety program began to fall apart. We weren't sure of the reason for the loss of interest—it could have been war nerves; perhaps labor turnover had something to do with it. Whatever the cause, we were having too many accidents and something had to be done—but what?

While we were trying to come up with a workable plan our safety engineer had to leave the company because of illness in his family. The whole mess fell into my lap. The frequency rate was 212, a hangover from 1945.

In order to show how, nine years later, the frequency rate had dropped to 3.21, it's necessary to answer the question: "What's behind the scenes in a successful safety program?"

I think the best way to answer this question is with some other questions—and answers:

Q. When did the present program start?

A. In 1946.

Q. Who was behind the program?

A. It was management's idea, with the cooperation of labor. Management knows that it's good business to provide safe working conditions for employees—that safety is a sound investment. Labor knows that without safety there can be no production, and without production, no jobs.

Q. How was the program put into operation?

A. It started with a complete reorganization. I changed the safety committee, put up new bulletin boards, installed suggestion boxes, used a new type of safety poster, painted stretcher cabinets and first aid kits, posted speed areas, and installed caution signs and a traffic light at the mill entrance.

It was like bill-boarding a circus; soon every employee knew a change was being made concerning the safety program.

Q. Give an example of a specific promotion campaign.

A. I started a safety slogan match program. Management thought I had lost my marbles when I asked for $950 worth of matches. "In a sawmill? With 'No Smoking' signs all over the plant?"

It took a real selling job to get those matches, but it paid off.

The matches were packed six folders to a sleeve, with a safety message printed on the flap of each folder. A sleeve of matches was given to each employee with his pay check—a different safety message each pay period.

The matches took safety messages into the homes, where families became interested. Safety begins at home; once you get the family on the selling side, half the battle is won.

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Miss Shane displays proudly the National Safety Council's Award of Honor and the company's new ambulance which were received on the same day.

DOROTHY SHANE is Safety Director, C. D. Johnson Lumber Company Division of Georgia-Pacific Plywood Company, Toledo, Ore. This article has been adapted from a talk presented at the Governor's Annual Industrial Safety Conference, November 1954.

Industry's most complete line

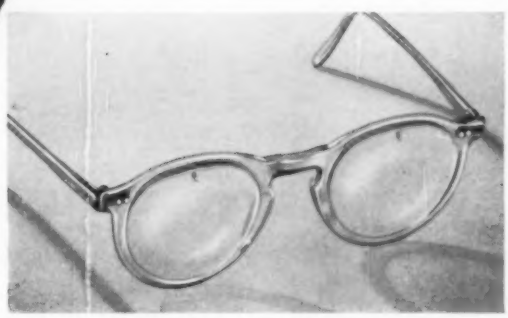
of safety frames and lenses

New Titan Metal-acetate combination

First combination frame in the industrial field. New S-7 lens shape for greater visual efficiency, increased protection, and better appearance.

Popular all-metal type

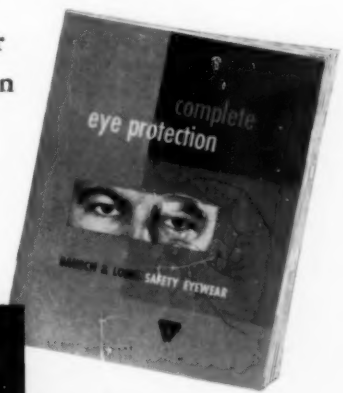
Corrosion-resistant nickel alloy metal frame series, with P-3 "drop oval" lens shape. M-50 shown.



Favorite in all-acetate

Non-sparking, combustion-resistant acetate frame series, with P-3 "drop oval" lens shape. Y-70 shown.

Whatever your need for spectacle-type safety eyewear . . . Bausch & Lomb has a model specially designed to give you the utmost in worker protection, efficiency and comfort. Write for "Complete Eye Protection," valuable data on safety lenses, frames, and their application:
Bausch & Lomb Optical Company
90301 Smith St., Rochester 2, N. Y.



BAUSCH & LOMB
SINCE B&L 1853

This log is being placed on the headrigs for cutting. They really grow and cut large trees in Oregon and hazards are in proportion.

Q. What was the first reaction to the new program?

A. The general reaction of "Why worry? I've worked in sawmills for years and never had an accident. All management wants is production—it doesn't care who gets hurt."

Q. What was done to combat this attitude?

A. We found that safety education was one answer. We had to convince workers that accidents are expensive—to themselves as well as to management. Today's workers won't stand still for preaching and dictating; they live in a free country and like to make up their own minds.

Our safety education campaign begins when a man walks in looking for a job. The first thing he sees is a sign reading "Unless you are willing to work at all times in a safe manner and regard the safety of fellow workers, *do not apply for jobs.*" In the personnel department, the interviewer points out this sign during the hiring interview.

Q. What about incentive plans?

A. Our only award program provides cash prizes for safety suggestions. I don't believe in paying people to be safe. If you pay your youngster a quarter to stay off the highway, he won't think about safety; he'll be thinking about the quarter and what he can buy with it. Safety must be first.

If employers pay their workers to be safe on the job, what sort of safety will they practice at home or on the highways, where no one pays them?

A person must want to be safe, must believe in safety. Safety isn't a contest between companies or mill departments; it's a contest waged by each of us against the ambulance, the hospital, and the cemetery.

Q. Does first aid play an important part?

A. Yes, a first aid station in the plant gives employees a feeling of security. They realize that management does care about their injuries—enough to provide immediate medical attention in the case of an injury, no matter how minor.

Q. What is the role of the company's industrial nurse?

A. Workers bring many problems other than injuries to the nurse. I find that the nurse gives the company a closer contact with the employee, that workers become more cooperative and more safety-minded when they feel free to talk to the nurse.

When a man is injured—and sometimes it's mostly his feelings that are hurt—he wants sympathy. He needs a shoulder to lean on. Many of the unsafe worker's problems can be solved while he is being treated. He may be on the wrong job; he may have problems at home.

Q. What are the procedures for reporting injuries?

A. We insist that workers report all injuries to their foremen. Report forms are available in each department, in the first aid station, and in the time office. Foremen are required to fill out one section.

These reports provide valuable information and, in a way, serve as inspectors. Each foreman checks the place of injury for hazards.

The reports also protect the worker in case of time loss at some later date.

Q. Is noise a hazard in your operations?

A. We conducted a noise survey recently and hope in the future to prevent deafness due to severe noise. This is a new program and will take a lot of education.

Q. What about sight-saving activities?

A. We started a vision program in 1950 which has proved

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WALTER G. LEGGE
New York

C. V. STARRANTINO
New York

H. J. HEITMAN
Peekskill, N. Y.

E. WILLARD MERRITT
New York

Say all of us to all of you,
From the Dominion to the Isthmus,
"Good cheer, good luck and good health, too—
And a very Merry Christmas."

EDWARD D. ALLEN
Los Angeles

CHALMER D. CLOSE
Chicago

ROBERT E. CONNERY
Richmond

KENNETH CROTTY
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SEASON'S GREETINGS

from the LEGGE Men of America

Walter G. LEGGE Company, Inc.,

101 PARK AVE., NEW YORK 17, N. Y.

Pioneers in Safety Floor Maintenance

A Blind Man Operates It

THE CIRCULAR table saw is one of the most commonly used power tools and it has been responsible for a large proportion of missing fingers. Since safety began to receive attention in industry many types of guards have been devised.

One refinement in guarding has been the use of transparent plastic which permits a clear view of the point of operation, yet a guard of sound design also permits operation by a blind man, as shown in the accompanying photo.

The guard shown was developed after more than three years of experimentation in school shops, woodworking plants, military installations, and vocational schools for the blind.

The guard, which is manufactured by Brett-Guard Company, Englewood, N. J., can be used with any conventional table saw having blades 6 to 16 in. diameter. It is made of cast aluminum with a transparent shield of Plexiglas 1½ in. thick. The shield covers the saw while allowing full vision. It can be used in a wide variety of operations, such as mitering, cross cutting, compound mitering, ripping, rabbeting, tenoning, dado feathering, diagonal sawing, template cutting, drop sawing, plowing and tonguing.

A flick of the knob sets the guard in any of three operating positions (in aligned holes) in extension plates attached to the table top. The guard is designed to provide horizontal and vertical pressure and can be used as an overriding fence for angular work. Ease of repositioning overcomes a once-common objection to the use of guards.

Atomic Plant Can Be A Safe Neighbor

CHANCES OF an atomic power plant causing serious damage to the surrounding area can be reduced to zero by proper plant design, and can be held at zero by responsible management, it was reported to the Nuclear Engineering and Science Congress in Cleveland, December 13.

Authors of these conclusions are Stuart McLain and Raymond O. Brittan, Argonne National Laboratory. They spoke under auspices of The American Society of Mechanical Engineers, one of the sponsors of the congress.

Plant design was considered most important because the addition of safety features after completion of a plant is seriously hampered by radioactive materials. Reactor designs of different types must be examined independently. Since consequences of reactor catastrophe are very large, safety has been given first place in the design and operation of nuclear plants.

Although a nuclear reactor will not act like an atom bomb under any circumstances, the magnitude of the hazard of radiation and radioactive materials was illustrated by a statement that "if the hazardous materials present in a single reactor should be released, it is possible that they would contaminate several hundred square miles, making the area temporarily or possibly permanently uninhabitable, though this is very unlikely."

The authors reported their experience with failures of several reactors that were designed for experimental development work. Of these only one was caused by failure of equipment, the others by operator error. The damage varied from zero to moderate, with little loss of equipment or material, except in one instance.

In this instance, at the Chalk River, Ontario, plant, damage was large and a year was required for cleanup because large amounts of fission products and long-lived alpha emitters were stored in the reactor as a result of long, continuous high power operations.

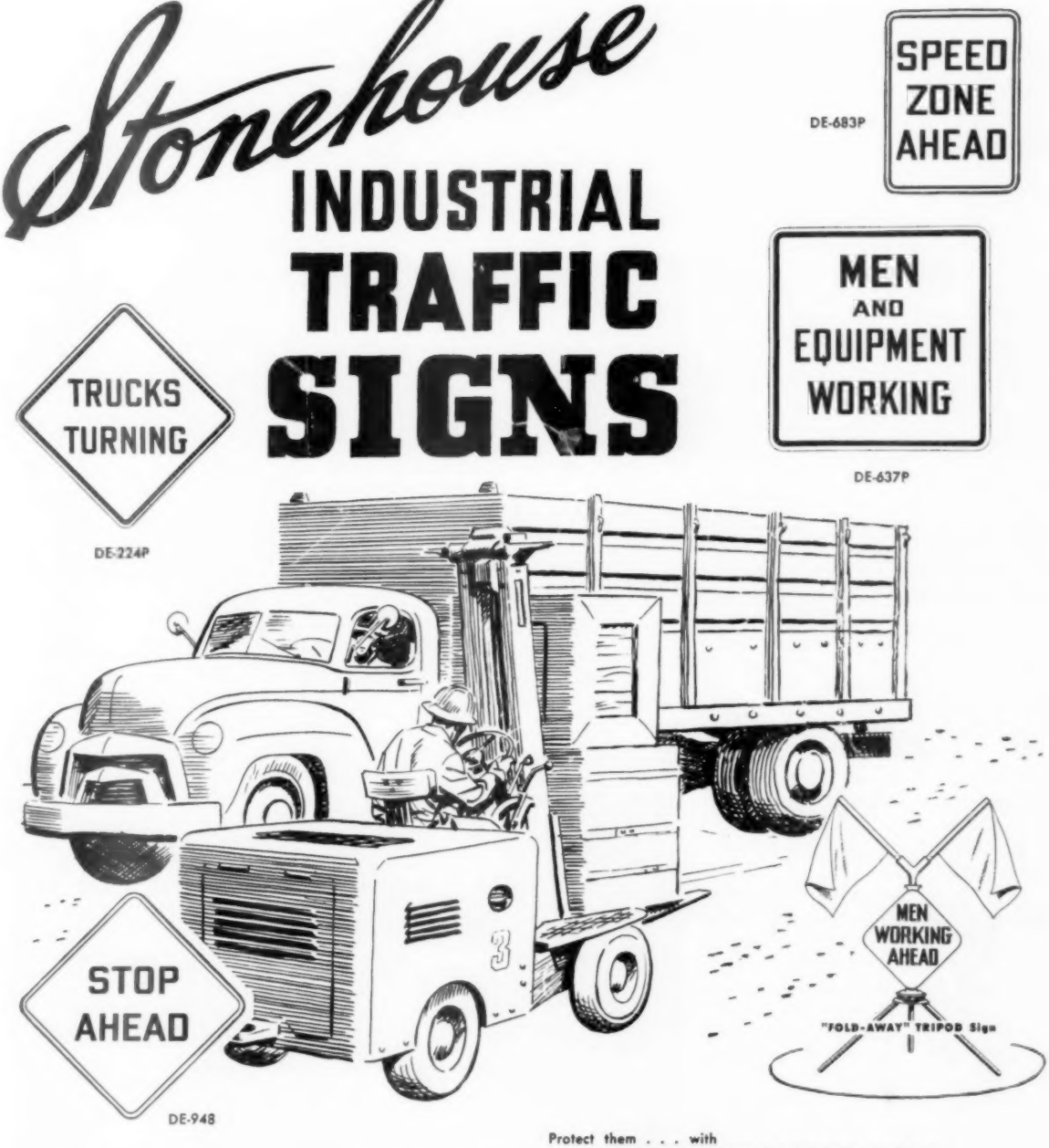
Although there has been no experience on power plant failures, it was indicated that the rate of power rise in a water reactor can be great enough to form a steam explosion; i.e., the steam pressure can be high enough that the contents of the reactor core might be ejected with considerable force.

Such an explosion would be expected to damage the reactor core severely and possibly to break open the pressure vessel. This could release the fission products and reacting materials to the reactor building, although there is no reason to expect escape of appreciable amounts of hazardous materials from a properly designed building.

Methods of preventing a reactor from going out of control include the use of automatic devices for detecting dangerous conditions and introducing means of limiting the fission rate when danger arises.

Stonehouse

INDUSTRIAL TRAFFIC SIGNS



INDUSTRIAL TRAFFIC . . . with its numberless trucks and other automotive vehicles, CAN be controlled and made safer for everyone.

Protect them . . . with

STONEHOUSE TRAFFIC SIGNS

For Accident Prevention

Just a few of these signs are shown here. Many more are available, in stock or special wordings, for prompt shipment.

- Send for Stonehouse Industrial Traffic folder. It's new, complete . . . free on request.

Stonehouse SIGNS, inc. • Stonehouse Bldg., 9th at Larimer • Denver 4, Colo.

MANUFACTURERS

"Signs Since 1863"

ACCIDENT PREVENTION • *steel* SIGNS IN STANDARD COLORS AND DESIGNS

Behind the Scenes

—*From page 68*

very successful, both from a health standpoint as well as accident prevention. I recommend this type of program to any industry.

Q. How is safety equipment and apparel supplied?

A. The First-Aid Department handles safety shoes, goggles, and other safety equipment. Safety shoes are sold at cost on a payroll deduction plan. Hard hats are furnished by management.

Q. Does the program include on-the-job safety training?

A. Yes, this type of instruction is very important. When a man is hired he is given a safety pamphlet and a badge number. His badge has a safety slogan printed on it. His foreman tells him what his job is, instructs the man on how to do it safely, and tells him he is expected to follow safety rules and work in a safe manner at all times. Right thinking and care are applied to the fundamental law of self-preservation—sound common sense.

Q. How are unsafe workers disciplined?

A. An unsafe worker has a private talk with his foreman and me. We explain that the company does not tolerate employees who disregard their own and others' safety. If the man is not suited for his present job, we transfer him and give him every chance to become a safe worker.

If he continues to ignore safety rules we suspend him for a few days. This is done to make him understand that we do not want unsafe and careless workers and that if he cannot work safely he no longer has a job. We have never had to terminate an employee for this reason.

Q. How do you maintain interest in the program?

A. We have a daily and Sunday radio program at 7:15 a.m. It carries a safety message every morning—on home safety, highway safety, "do's" and "don'ts" on the job, etc. The employees arrive on the job alert, thinking, "We got here safe and we're going home tonight the same way."

Material furnished by the National Safety Council is also important. Flying the safety flag means a great deal to our employees; just let the guard forget to fly it some morning! On-the-job instruction and the twice-monthly safety movies also help keep everyone on his toes.

Q. How is the safety committee organized?

A. All of our 32 foremen are committee members. Another six are selected by the union; these are rotated every three months. We have a dinner meeting once a month at 4:30 p.m. and every member must attend or give a good excuse for his absence.

Foremen are there at management's request as a part of their job, although they sometimes send an employee in their place. Each foreman turns in an inspection report form for his department at every meeting.

"Now, children, give Daddy time to get over his traffic jitters."

Get-well cards are distributed for foremen to send to employees absent because of illness or injury. These build good will between foreman and employee and bring about better cooperation.

We have a chairman, a vice-chairman and a visiting commit-

—*To page 98*

Floating Fire-Fighter

This spherical fire-fighter, shown here in a storage tank, floats on gas or oil, goes into action automatically as a fire starts. Vaporized liquids with a methyl bromide or chlorobromonethane base are sprayed from revolving jets. The manufacturer, National Fire Protection Company, Feltham, Middlesex, England, claims it will bring fire under control within seconds. Photo courtesy of the British Information Services.

Tuffy® SLING NEWS

Vol. 1 — Published Monthly in Leading American Trade Magazines by Union Wire Rope Corp. — No. 4

HOW NEW FERRULE WORKS IS SHOWN IN FREE SLING BOOK

Ferrule Story, Facts on Fittings and Slings In Useful New Edition

This new and enlarged edition of the Tuffy Sling Handbook is an absolute "must" for plant and safety engineers, purchasing agents and shop foremen—everyone who uses, buys, or supervises work with slings. We distributed more than 85,000 copies of the first edition, and the demand for this new, completely revised edition is going to be even greater.

Featured in our new Sling Handbook is the new Tuffy streamlined metal ferrule pressed on the tucked eye splice. This new Tuffy Sling Handbook lists nearly a dozen new fittings—sling bridles, slip-on thimbles, safety hooks, sling saddles, horizontal clamps, and many others. It tells you all about the enlarged line of factory-fitted Tuffy Slings. It contains a complete rigger's manual, proof-tested rated working loads and specifications on all Tuffy Slings.

It's Yours Free, but our supply is going fast. So mail the coupon now for your copy of this valuable Tuffy Sling Handbook.

SEE DISTRIBUTOR FOR TUFFY SLINGS AND HOIST LINES

He can save you the time and trouble of carrying a full inventory. Tell him your normal requirements and he will keep matching stock of Tuffy Slings and Tuffy Hoist lines for fast delivery. Your Tuffy distributor can supply longer sling service life—bigger value for your money.

New Tuffy Ferrule Exclusive Feature at No Extra Cost

Union Wire Rope developed the new Tuffy Sling ferrule to make Tuffy Slings easier, safer, and faster to handle. It took extensive research and proof testing to improve upon the full length hand splicing of Tuffy Sling eyes which have withstood the test of time. Now equal or greater strength is attained with ferrule splice and the hazards of protruding tuck terminals are eliminated. Yet it costs you nothing extra for this exclusive feature.

Strength of Tuffy Fabric Now Equaled in Splice

First, the 9-part machine braided Tuffy Fabric of the sling eye is tuck-spliced together. Then the new Tuffy steel ferrule is slipped around the splice. Under terrific pressure, the metal of the ferrule (see cross section of splice and ferrule above) virtually flows into the interstices of the machine braided fabric. Every Tuffy sling is given strength at the eye splice equal to the superior strength of the machine braided fabric. The swaging of the ferrule at the ends makes them smooth, so they can't injure hands or catch on loads.

Mail Coupon for FREE Copy of New **Tuffy Sling HANDBOOK**

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Specialists in high carbon wire, wire rope, braided wire fabric, stress relieved wire and strand.

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CITY_____ ZONE____ STATE_____ 15

COMING EVENTS

in the field of safety

Jan. 19-20, Milwaukee
Wisconsin Council of Safety, Midwinter Safety Conference and Exposition (Hotel Schroeder). R. W. Gillette, executive secretary-treasurer, Wisconsin Council of Safety, 1 West Wilson Street, Madison 2, Wis.

Jan. 23-24, Detroit, Mich.
Sixteenth Annual Congress on Industrial Health (Sheraton-Cadillac Hotel). Council on Industrial Health, American Medical Assn., 535 N. Dearborn St., Chicago 10.

Jan. 25-27, Gainesville, Fla.
Third Annual Conference on Accident Prevention Engineering, based on the theme, "Inspections, Accident Investigations, and Remedial Actions." Donald B. Wilcox, conference coordinator, Department of Industrial Engineering, University of Florida, Gainesville, Fla.

Feb. 2-3, San Francisco
Sixth Annual California Statewide Meeting, Governor's Industrial Safety Conference (Fairmont Hotel). A. C. Blackman, chief, Division of Industrial Safety, Department of Industrial Relations, State of California, 965 Mission St., San Francisco.

Feb. 28-Mar. 1, Urbana, Ill.
Forty-second Annual Illinois Highway Engineering Conference. John W. Hutchinson, 303 Civil Engineering Hall, University of Illinois, Urbana, Ill.

Mar. 4-6, Atlanta, Ga.
Southern Safety Conference and Exposition (Biltmore Hotel). W. L. Groth, executive director, P.O. Box 8927, Richmond 25, Va.

Mar. 7-8, Philadelphia
Twenty-second Annual Philadelphia Safety and Fire Conference and Exhibit (Broadwood Hotel). Walter W. Matthews, managing director, Philadelphia Safety Council, 121 S. Broad St., Philadelphia 7.

Mar. 19-21, Los Angeles
Third Annual Southern California Safety Congress and Exhibit (Ambassador Hotel). Joseph M. Kaplan, secretary-manager, Greater Los Angeles Chapter, National Safety Council, 610 S. Main Street, Los Angeles 14.

Mar. 28-29, Indianapolis
Ninth Central Indiana Safety Conference and Exhibit (Claypool Hotel). Jack Gunnell, director, Indianapolis Safety Council, c/o Chamber of Commerce, 320 N. Meridian St., Indianapolis 11, Ind.

Apr. 5-7, Klamath Falls, Ore.
Forest Products Safety Conference. Charles Houston, personnel manager, Weyerhaeuser Timber Company, Klamath Falls, Ore.

Apr. 9-10, Toronto, Ont.
Industrial Accident Prevention Associations Annual Conference (Royal York Hotel). R. G. D. Anderson, general manager, 90 Harbour St., Toronto 1, Ont.

Apr. 10-11, Fort Wayne, Ind.
Thirteenth Annual Northeastern Indiana Safety Conference and Exposition (Chamber of Commerce Building). Sponsored by the Industrial Safety Committee of the Fort Wayne Safety Council. Ivan A. Martin, manager, Fort Wayne Safety Council, Chamber of Commerce of Fort Wayne, Fort Wayne 2, Ind.

Apr. 10-12, St. Louis, Mo.
Central States Safety Conference (Hotel Chase). Reyburn Hoffman, secretary-manager, The Safety Council of Greater St. Louis, 511 Locust St., St. Louis, Mo.

Apr. 16-20, New York
Twenty-sixth Annual Greater New York Safety Convention and Exposition (Hotel Statler). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 E. 42nd St., New York 17.

May 2-4, Charlotte, N.C.
Twenty-sixth Annual North Carolina Statewide Industrial Safety Conference (Charlotte Hotel). H. S. Baucom, director of safety, North Carolina Industrial Commission, Raleigh, N.C.

May 7-9, Allentown, Bethlehem, Easton, Pa.
Twenty-ninth Annual Eastern Pennsylvania Safety Conference. Harold A. Seward, secretary-treasurer, Lehigh Valley Safety Council, 602 E. Third St., Bethlehem, Pa.

May 10-11, Baltimore, Md.
Governor's Safety-Health Conference and Exhibit (Lord Baltimore Hotel). Joseph A. Haller, executive director, Department of Labor and Industry, State of Maryland, 12 East Mulberry St., Baltimore 2, Md.

May 22-24, Rochester, N.Y.
First Genesee Valley Safety Conference and Exposition. Sponsored by Rochester Safety Council; Genesee Valley Chapter, ASSE, and Industrial Management Council of Rochester. William H. Keeler, secretary-treasurer, Genesee Valley Safety Conference, Inc., 55 St. Paul St., Rochester 4, N.Y.

June 5-6, Hartford, Conn.
Eleventh Annual Conference of the Connecticut Safety Society (Hotel Statler). Stephen J. Pollock, Jr., manager, c/o Remington Arms Co., Inc., 939 Barnum Ave., Bridgeport, Conn.

Oct. 22-26, Chicago
Forty-fourth National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

More Than Luck

SEVEN SEEMS to be a lucky number for the men of the refrigeration shop at Kelly Air Force Base, Tex. But, even with this giant horseshoe, it took more than luck to rack up seven years without a lost-time accident. Safety engineers made and presented this trophy to Supervisor James Watkins (left) and shop safety representative Dallas Jackson.

It takes 42 elephant tusks to make a ton of ivory. (Who wants a ton of ivory?)

TRAGEDY COMES TO LEXINGTON. This tank truck jackknifed, tipped over on its side and traveled about 100 feet in that position. Sparks showered up from beneath the truck and it blew up. The driver was killed.

Rockwood FOAM puts out tank truck fire in minutes!

Here is the true story from the pages of the Boston Globe and eye-witnesses

It was Thursday, March 17, 1955, 9:30 a.m. A tank truck was stopping at a traffic light on the Concord Turnpike in Lexington, Massachusetts. Suddenly, it jackknifed. There was a puff of smoke, then an explosion. The driver was hurled onto the roadway. His clothes were aflame and he collapsed. Onlookers said flames reached 200 feet in the air.

Minutes later, in answer to a telephone alarm, Engine 2 of the East Lexington Station was on the scene. Flames whipped by winds and fed by several thousand gallons of gasoline were sweeping across the road and scorching the surrounding trees. Black smoke billowed into the air.

Roy A. Cook, Chief Engineer, Lexington Fire Department, ordered Engine 2, which carries 500 gallons of water, to hold back the flames until Engine 1, carrying Rockwood FOAM, could be put into action. .

Soon Engine 1, equipped with a 1½" Rockwood FOAM eductor plus the new type SG-60 FOAM nozzle with adapter for straight stream and FogFOAM, was at the scene. *With this Rockwood equipment and FOAM, Engine 1 had the fire completely under control in fifteen minutes; completely extinguished in forty-five minutes.*

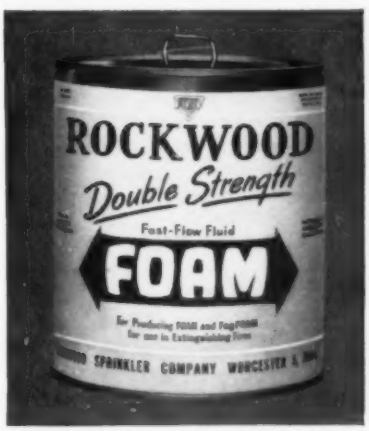
Does your city have this protection? With ever-increasing traffic, more filling stations and more tank trucks on the road, the frequency of gasoline fires is on the increase. When tragedy came to Lexington, headlines told a grim story. But a major catastrophe was prevented because the Lexington Fire Department was prepared with Rockwood products. Every Lexington Fire Department Truck is equipped with Rockwood FOAM.

Be prepared. Put this great fire fighter to work for you. Specify Rockwood Automatic FOAM Proportioning Systems, Rockwood FogFOAM nozzles and FOAM liquid when you order a fire truck.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

Distributors in all principal cities



ROCKWOOD DOUBLE-STRENGTH FOAM LIQUID, 3 parts mixed with 97 parts water, forms a solid FOAM blanket that quickly re-seals itself. Available in 5 gallon drums.

SEND FOR THIS INFORMATIVE BOOKLET

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
1048 Harlow Street
Worcester 5, Mass.

Please send me your illustrated booklet on Rockwood fire fighting products.

Name.....
Title.....
Company.....
Street.....
City.....*Zone*....*State*.....

INDUSTRIAL HEALTH

Abstracts of current literature
on Occupational Hygiene, Medicine, and Nursing
By F. A. Van Atta, *Industrial Department, NSC*

Back Injuries

Prevention of Back Injuries Through Preplacement Examinations; a Progress Report by Wm. F. Becker. *Industrial Medicine and Surgery*, 24:486-490 (Nov. 1955).

THE HAWTHORNE WORKS of the Western Electric Company has had pre-employment examinations as a requirement for many years, but five years ago to attempt to head off the rising trend in the number of industrial back injury cases they added a special preplacement examination for newly-hired employees assigned to heavy work and for employees being transferred into heavy work. They defined heavy work as jobs which call for lifting, carrying, pulling, or pushing objects weighing more than 30 pounds for more than 20 per cent of the working time. The details of the examination were reported in *Industrial Medicine and Surgery* in 1953.

The number of individuals examined has increased continuously from 149 in 1951 to 3,074 in 1954. Among the 3,074 men examined in 1954, 73 per cent were accepted as able to do heavy work.

It is not possible to assign a specific single reason for the results obtained since there has been a continuous effort to improve and modernize material-handling equipment and machinery and a continuous effort in providing safe working conditions and safe operating procedures. But certainly the program of getting properly qualified men on the heavy lifting jobs has had something to do with the reduction of 67 per cent in the number of disabling back injuries in the five years following the introduction of the examinations as compared with the five preceding years.

The figures are 219 in the base period and 73 in the five years following the examinations. In 1954 there were only three disabling back injuries as compared with an average of 47 in the 1946-1949 period.

Even more significant is the decrease in severity from well above 100 in the base period to five during 1954.

The examinations involved include a careful history, a physical examination, and X-ray examination of the lower back. The X-rays have generally been one front to back, one sideways, and one designed to show most clearly the lumbosacral joint. Other views are sometimes taken if these indicate the necessity. The X-ray, however, is used only as a help in the diagnosis as the pathology of the spine and is not necessarily taken as the final criterion as a man's ability to do heavy work.

They have become convinced that there is no simple, easy and direct way to measure the fitness of a person to do a particular job. In addition to his abilities and disabilities they also depend to a considerable extent upon his previous experience and training and upon his desires. They do find that of individuals who complain of low back pain only 17.6 per cent could be considered as normal and of those who have had previous disabling back injuries only 10 per cent were found to be without structural changes in the back.

Resuscitation For Infants

A New Method of Manual Artificial Respiration for Infants and Small Children by Harold J. Rickard. *The Journal of the American Medical Association*, 159:754-765 (October 22, 1955).

THERE CAN BE NO DOUBT about the efficiency of the arm lift back pressure method of artificial respiration but there may be a question as to its safety when applied to infants and small children, particularly when applied by relatively inexperienced hands. In the expiratory phase it is difficult to control the pressure exerted on the relatively frail ribs of an infant in the age group of about 10 days to one and one-half to two years and in the inspiratory phase their relatively undeveloped shoulders are also subject to injury.

There has been no experimental work to substantiate the possibility of injury in these age groups and it seems unlikely that there will be any such experimental work either to substantiate the need or to determine experimentally which methods are most efficient because of the hazards involved.

As a practical matter, it cannot be doubted that there is a need for a safe, efficient, and acceptable manual method of artificial respiration for infants and small children as they are in both the helpless and the exploratory stage and are probably more subject to asphyxial type injuries than any other age group. While the mechanical resuscitators are perfectly safe and efficient for individuals of this age as well as for others, they still have the difficulty of not ordinarily being immediately available and it is always necessary in cases of asphyxia to start resuscitation immediately. Even if the method used is relatively ineffective, the possibility of recovery is much better if some air exchange is kept going continuously.

Many of the professional rescue teams have tried to improvise methods which would be relatively safe and efficient for infants. One of the best of these was an approach to the principle of Eve's rocking method by holding the infant on the outstretched hands

The FACTS About Gas Mask VISION

Scientific Vision-Scope Tests of Leading Industrial Masks Prove ACME's Greater ALL-AROUND VISION

This comparison chart shows the vision patterns of five leading gas masks including both single and double-lens types as recorded on the Vision-Scope which accurately checks vision angles. Note that at the most important angles of vision—noon and 6 o'clock—Acme gives 42.5% and 3.2% greater vision than the nearest competitor. At 9 and 3 o'clock, Acme's advantage is from 1% to 23.8% greater. At 8 and 4 o'clock and 7 and 5 o'clock (the least important angles of vision), Acme is from practically equal to 18% better than the other masks. Only one mask — the ACME — gives a maximum usable vision all around.

GET THESE PROVEN ACME ADVANTAGES

- ✓ Greater angles of vision than any other industrial mask, proved by tests.
- ✓ No perceptible distortion of vision because of flat plate laminated lenses.
- ✓ Decreased potential leakage around lenses due to "straight pull" of rims around flat lenses.
- ✓ Greater comfort for short or long use, reported by wearers.
- ✓ Higher efficiency of fog clarification through ACME Dead-air Check Valves' control of air flow. (Sub-zero tests.)
- ✓ Low exhalation and inhalation resistance.
- ✓ Light weight—1.455 lbs. with laminated glass lenses; 1.279 lbs. with plastic lenses. (Both with 10" hose and CM-641 adaptor.)
- ✓ Acceptable conversation transmission at no premium cost.
- ✓ Interchangeability of accessories—one face piece serves for all uses including welding.
- ✓ Reinforced head harness.
- ✓ Low Price. Complete with head harness, only $17.60;—with 10" hose, $19.95;—with 27" hose, $23.00. F.O.B., South Haven, Michigan. (Slightly higher on west coast and in Canada.)

ACME's perfect fit is assured by a combination of large areas of soft rubber against the face; the hinge effect between lenses to accommodate narrow or wide faces; and generous over-all proportions.

Here is scientific proof that you can not judge the vision of a gas mask by its exterior appearance. It's what the wearer can see through the mask that counts, and that's where ACME Full-Vision masks prove their superiority.

As far back as 1937, ACME pioneered in increasing lens size to provide greater vision for greater safety. Today, ACME Full-Vision masks still lead the field in giving you clear, undistorted vision—up, down and to either side—along with many other advantages built into this outstanding safety equipment.

Compare ACME with other masks feature by feature, and you'll agree that ACME gives you the best protection your money can buy. Order one or more masks today and let ACME performance give you the best proof of this statement.

Write for copy of Vision-Scope Test Chart and for Bulletin No. 541 on Gas Masks and Bulletin No. 542 listing 433 hazardous gases and how to overcome them.

ACME PROTECTION EQUIPMENT COMPANY

1209 Kalamazoo Street—South Haven, Michigan

in a prone position and rocking him back and forth, holding the feet with one hand to avoid dropping the infant.

Rickard proposes a new method utilizing the Eve principle which he has named the "Rickard Prone Tilting-Visceral Shift Method."

In this method the middle finger of the right hand, bent at the second joint to form a 90° angle, should be placed in the subject's mouth, over the tongue, in order to draw the tongue slightly forward and depress it into the floor of the mouth. The thumb and index finger and the ring and middle finger are placed on either side of the lower jaw so as to extend it forward and to support and stabilize the head which is maintained in a midline position.

The subject is then placed in a prone position on the right forearm with the arms and legs straddling the forearm and the left hand is placed palm down across the back with the fingers spread on either side of the neck and hooked over the shoulders to maintain the infant stabilized on the forearm. The upper arm is then supported against the chest or the elbow supported on the knee in a sitting position and the infant is tilted down at a 45° angle and then up to a 45° angle and repeated at a rate of eight to 12 times per minute as in other forms of manual artificial respiration.

The method has been tried out by a number of practical operators and has been found possible to apply it to children from the age levels of about one week to a year and one-half and from about eight pounds to about 30 pounds in weight. With the heavier children it is necessary to support the elbow on the knee as the shoulder becomes severely cramped if this is not done. Except for cramping of the shoulder when attempting to hold an infant of about 30 pounds with the elbow unsupported, the operators reported universally that the method was easy to learn and was not especially tiring. The cramping can be relieved by a slight alteration in position of the upper arm.

In the course of this maneuver it is easy to cover the infant to maintain body heat if that should be necessary and drainage of water or secretions from the airway is facilitated by the fact that the chin is held forward, the head is in the midline position rather than turned to almost 90° as in other standard prone pressure methods and the airway is maintained open by the pressure of the middle finger in the mouth.

It is felt that application of this method fulfills the criteria which have been proposed for an efficient, safe and acceptable method of manual artificial respiration for infants and small children.

Asthma, Bronchitis Due to Chemicals

Bronchial Asthma and Asthmatic Bronchitis in the Chemical Industry by Robert Lerner. *Industrial Medicine and Surgery*, 24:454-458 (October 1955).

THIS PAPER is based on a study of bronchial asthma and asthmatic type of bronchitis in a single chemical company in Basel, Switzerland. The company had 965 employees of whom 70 showed signs of bronchial asthma or bronchitis. According to Lerner, bronchial asthma is present in about five per cent of the working population and this incidence of 13.7 per cent is substantially higher.

Combat Industrial Dermatitis with

M-S-A FEND-SILICONE CREAM

... New formula utilizes advantages of silicones to protect against irritants

The addition of silicones makes this remarkably effective bland vanishing cream chemically inert, adhesive, and water repellent. It goes on the skin smoothly and easily, and it is free from any "feel." The invisible film is tough, durable. It protects against soaps, detergents, chemical dusts and powders, dilute acids and alkalies. The cream is non-toxic, does not interfere with normal skin gland function, and is buffered to the average pH of the acid mantle of the skin. Available in 3 oz. tubes or 1 lb. jars. Write for details.

also M-S-A FEND BARRIER PROTECTIVE CREAMS AND LOTIONS

Neutral and bland, Fend products are available for a wide variety of irritants. They are easy to apply and remove—will not irritate the most sensitive skin. Write for details.

MSA
SAFETY EQUIPMENT HEADQUARTERS

MINE SAFETY APPLIANCES COMPANY

201 North Braddock Avenue, Pittsburgh 8, Pa.

At Your Service: 82 Branch Offices in the United States and Canada

The greatest percentage of employees with asthma occurred in those exposed to dichloroethylmethyl ether. Almost 40 per cent of the individuals exposed to this compound showed signs of asthma, the next largest group were those exposed to the volatile chlorides of phosphorus. Twenty-eight per cent of this group also showed asthma.

Clinically the asthma observed in the industrial group appears to be identical with that seen in the nonindustrial population. The illness began in some instances as the result of an acute intoxication and in others it developed gradually and progressively over several years. It is not possible to ascertain clinically whether the chemical substances acted purely as toxins or also as allergens.

In asthmatics the ability to perform manual labor is generally impaired and in a good many of these cases it seems to be permanently impaired. The condition does not respond well to treatment and asthmatic symptoms are apt to persist in most cases of asthma for many years.

Prevention of the condition is much more satisfactory and in chemical work is concerned primarily with keeping the irritating substances out of the air by means of closed systems or by means of ventilation. People exposed to irritating and toxic materials of this sort should also be given medical examinations at half-yearly or yearly intervals depending upon the extent of the hazard.

AEC Appointments

APPOINTMENTS of Charles L. Marshall as director of the Division of Classification and Dr. Charles D. Luke as technical assistant to the director of civilian application for hazard evaluations have been announced by R. W. Cook, acting general manager of the Atomic Energy Commission.

Dr. Luke, who had been director of classification since August, 1954, was professor and chairman of the Department of Chemical Engineering at Syracuse University from 1940 to 1954 and during World War II served with the Manhattan Engineer District as technical officer on fluorine and hydrocarbon research, uranium chemistry and pilot plant development. He also was operations officer for the gaseous diffusion plant at Oak Ridge during the war.

In his new position Dr. Luke will assist in the development of standards, codes, and guides for public health and safety in the design, operation and location of facilities licensed and operated by the commission.

As director of classification, Mr. Marshall is responsible for the administration of the AEC's policies for the classification and declassification of atomic energy information. He had served as deputy director since 1949 after having been in the Declassification Branch in Oak Ridge, Tenn. and Washington, D. C. from 1946 to 1949.

HOOD *Lightweight* Industrial Gloves — For Jobs

where "Touch" and "Feel" are important

No. 8009 gauntlet, for light industrial use. Working hands are protected but still sensitive to "touch" and "feel". It's coated with natural rubber; net-lined so that rubber doesn't touch the hand. A special rough surface assures firm grip. Small, medium, large sizes.

Write for free catalog — shows the RIGHT Hood neoprene, rubber or plastic coated glove for EACH job.

HOOD RUBBER CO., Watertown, Mass.

a division of the B. F. Goodrich Company

RUBBER - NEOPRENE - PLASTIC COATED INDUSTRIAL GLOVES

TAYLOR MADE *Alloy Steel* CHAIN!

assures a greater safety factor!

A certificate of test is issued with every Taylor Made Alloy Steel Chain to prove that it has been tested to twice its working load limit. This represents a safety factor twice that of wrought iron chain.

stays on the job longer!

Taylor Made Alloy Steel construction and controlled heat-treatment increases the life of the chain—makes it tougher, harder and more resistant to shock, grain-growth and work-hardness than wrought iron types.

costs less than wrought iron types!

Actual operating experience in scores of plants has proved that Taylor Made Alloy Steel Chain's greater safety, superior strength and longer life assures far lower chain costs in the long run.

See your DISTRIBUTOR or send coupon!
S. G. TAYLOR CHAIN CO. — Hammond, Ind.
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S. G. Taylor Chain Co.
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Hammond, Indiana
Please send Bulletin 13 giving all the facts and specifications on Taylor Made Alloy Steel Chain.

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Address_____
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TAYLOR MADE
A GREAT NAME IN
Chain SINCE 1873

Radiological Conference Set for This Month

A CONFERENCE to help industry protect its workers from on-the-job hazards of atomic energy and other radiation will be held at Canisius College, Buffalo, N. Y., January 17-19. The Radiological Safety Conference is jointly sponsored by the New York State Department of Labor and Canisius College.

The conference is designed to acquaint safety engineers and other supervisory personnel with problems and control techniques of atomic energy and other radiation in industry. The supervisors also will be given advice on training workers to protect themselves.

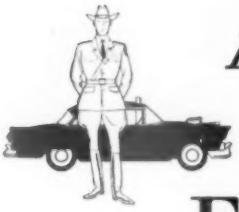
Instructors will include faculty members of Canisius College and physicians and engineers of the New York State Labor Department's Division of Industrial Hygiene. A highlight of the conference will be a discussion of New York State's new worker-safety regulations—Industrial Code Rule No. 38—by the persons who will enforce it. The code, which became effective December 15, is intended to protect the approximately 150,000 workers in the state who may be exposed to the effects of radiation while at work.

Practical control techniques as applied in factories will be stressed. Minimum instruction in basic atomic physics will be given, but only enough theory will be presented so that fundamental problems may be solved.

Topics to be discussed include the problem of radiation control in industry, principles and properties of radiation, principles of radiation protection and control, instrumentation, the radiological safety problem in industry, provisions of New York State Industrial Code Rule No. 38 relating to radiation protection, and ventilation.

Persons interested in attending the conference should write to Rev. Joseph J. Cantillon at Canisius College, Buffalo, N. Y.

We've made great medical progress in the last generation. What used to be merely an itch is now an allergy.



Police Officers called for greater driver and passenger protection...

FORD answered with LIFEGUARD DESIGN

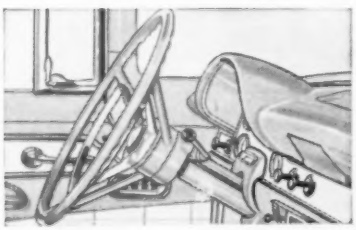
Seat belts help keep driver and passengers from being thrown from their seats, in the event of an accident.

Police authorities have pointed out that accident injuries could be reduced by changes in automobile design.

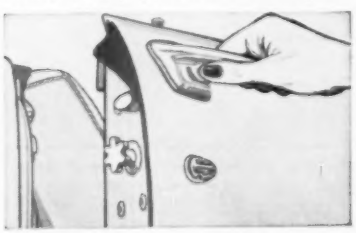
More than two years ago Ford, in cooperation with police safety experts, universities and medical associations started a program of research and testing so a safer car could be built. The result? Lifeguard Design in the '56 Ford.

For example, the steering post was found to be a major hazard to the driver in accidents. So Ford designed a new steering wheel that actually takes up most of the shock of impact. Occupants hitting hard surfaces within the car—or being thrown out—are the other important factors in accidents. Ford helps protect passengers against these hazards with new double-grip door latches, double-swivel rear-view mirror, optional padding for control panel and sun visors and optional floor-anchored seat belts.

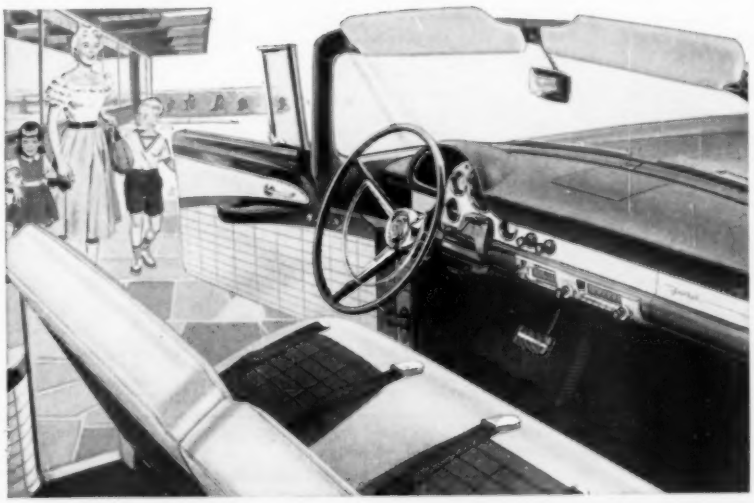
FORD Division of FORD MOTOR COMPANY



Lifeguard steering wheel has deep center . . . helps protect driver from post.



Lifeguard door locks give extra protection from doors opening under impact.



Lifeguard cushioning for instrument panel and sun visors helps lessen injuries from impact against hard surfaces, in case of an accident.

SAFETY

Off the Job

Program suggestions for company activities and announcements of Council services will be carried in this department. For information on program planning write G. T. O'Neill, OTJ Safety Committee, National Safety Council Staff Representative

New Reporting Form

To facilitate uniform reporting of off-the-job accident experience, the Off-the-Job Committee of the Industrial Conference has developed the reporting form shown below. The committee reviewed various summary forms suggested by the National Safety Council, the Manufacturing Chemists Association, E. I. du Pont de Nemours & Co., Inc., and the Celanese Corporation of America before arriving at an acceptable format.

To aid in the development of accident information on a community and geographic location basis, as well as on an industry basis, it will be desirable to have every location of a company submit its monthly experience to the National Safety Council. The data received will also develop a great deal of desired information about non-fatal injuries in public and home accidents. Periodic reports will be made of the information developed, from a compilation of all experience reported.

Copies of the form are available for distribution to companies wishing to furnish us with this information. Sufficient copies of the form will be furnished to each company location, as requested, for their reporting requirements.

The Off-the-Job Safety Committee requests everybody's support in encouraging the reporting of off-the-job accident information to the National Safety Council.

Planning for March and April

Operation Safety themes for these months will be "Signs of Life" and "Child Pedestrian Safety" respectively. Home and public safety themes for the same months are "Family Courtesy for Safety" and "Community Hazard Hunt for Child Safety."

MONTHLY SUMMARY OF OFF-THE-JOB ACCIDENTS

State_____ City_____ Month_____ Year_____

Company and Plant_____ Plant Address_____

OFF-THE-JOB EXPERIENCE

Exposure Hours _____ No. L/T Injuries _____ No. of Fatalities _____ Days Lost* _____ Frequency Rate_____

PREPARATION GUIDE: MAIL ONE COPY TO THE OFF-THE-JOB SAFETY COMMITTEE, NATIONAL SAFETY COUNCIL, CHICAGO 11, ILLINOIS

EXPOSURE HOURS AND FREQUENCY RATE—An average of 550 hrs. per employee per month (138 hrs. per week—4.3 weeks per month) is used as the exposure to Off-the-Job accidents. The Freq. Rate equals No. of Lost Time Injuries × 1,000,000, divided by the No. of Employees × 550.

NO. OF LOST-TIME INJURIES—Includes all injuries other than those on-the-job which result in employees (1) loss of one or more full working days, or (2) inability to work on one or more non-scheduled work days. Include fatal injuries, but not injuries to employee dependents.

FATALITIES—Include those which occur during the month and indicate the type of activity under 'remarks.' If Employee dies from injury previously reported indicate the type of accident or activity and month of occurance. Do not include dependents.

DAYS LOST—Total calendar days lost from work plus all intervening holidays, vacations and other non-scheduled time during which employees are unable to work because of injuries to themselves. *For permanent partial disabilities do not include scheduled charges, use only actual days lost.

LOCATION AND CAUSE—Caption over each column denotes location. Individual items denote cause. **In 'dependents' column show accidents to dependents causing employee absence, but do not include in employee experience.

REMARKS—Where other classification is used, type of accident or activity involved should be indicated.

TRANSPORTATION	NO. CASES	DAYS *LOST	HOME	NO. CASES	DAYS *LOST	PUBLIC	NO. CASES	DAYS *LOST	** DEPENDENTS	NO. CASES	DAYS LOST
AUTO, TRUCK			FIREARM			FIREARM			MOTOR VEHICLE		
BICYCLE			MACHINERY, TOOLS			SPORTS			HOME		
BUS, STREETCAR			FIRE, EXPLOSION			FIRE, EXPLOSION			OTHER		
MOTORCYCLE			ELECTRICITY			FIGHT, ASSAULT					
RAILROAD			TOXIC, MATERIAL			ANIMAL, INSECTS					
BOATS			FALL, SLIP			EXPOSURE, HEAT AND COLD					
PEDESTRIAN			IMPROPER LIFTING			FALL, SLIP					
OTHER			HOT OBJECT, MATERIAL			STRUCK BY OBJECT					
			STRUCK BY OBJECT			OTHER					
			SHARP OBJECT								
			OTHER								
CLASSIFY ACCIDENT BY MODE OF INJURED WORKERS TRANSPORTATION			CLASSIFY ACCIDENT BY FIRST APPLICABLE CAUSE ON THE LIST			CLASSIFY ACCIDENT BY FIRST APPLICABLE CAUSE ON THE LIST					
TOTALS											

REMARKS_____

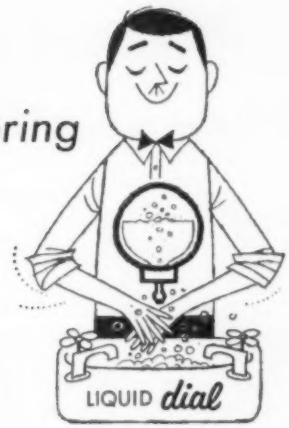
NAME OF INDIVIDUAL REPORTING_____

ON-THE-JOB EXPERIENCE No. of Employees_____ Man-Hours Worked_____ Type Industry_____

Total No. of Injuries_____ No. of Fatalities_____ Days Lost* _____ Frequency Rate_____

10M115505

Armour's Hexachlorophene Soaps bring you the easiest, thriftiest way to protect employees from contact dermatitis!



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Skin infections and dermatitis will steal more than 100 million dollars from industry this year. Don't let them rob employee health, time and morale—or company profits—*just replace the ordinary soap in your washrooms with one of these Armour soaps containing Hexachlorophene.*

Regular washing with these Armour soaps destroys up to 95% of the skin bacteria that spread contact dermatitis and cause secondary infections. And they're all mild, rich-lathering soaps—effective in hot or cold, soft or hard water.

There's no need to buy expensive new soap equipment either! Armour Hexachlorophene protection comes in liquid, bar or powdered form. If you desire a scrubber added, try Formula #99, a germicidal powdered hand soap with either mild vegetable or soluble Borax scrubber added. Put thrifty Hexachlorophene protection to work for your employees now—send the coupon for free samples today!

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Soluble Cutting Oils

Their characteristics and problems in their use

By WILLIAM L. LEA, Ph.D.

In the machining, drilling or grinding of metal parts, heat is generated by friction between the tool and the metal. To do precision work and prolong the life of the tool, this frictional heat must be kept within tolerable limits. This is accomplished through the use of a machine tool coolant.

Early in the history of the machining of metal parts, water was employed as the coolant. Hand sharpening of cutting tools, such as knives, scythes, sickle bars, etc., was done with a whetstone or grindstone using water as a coolant. Possibly this successful usage of water as a coolant in hand operations influenced early machine operators to employ water as the coolant in machine tool operations. At any rate, water alone was used as the coolant to remove heat formed by tool friction in early machining operations.

It soon became apparent, however, that this simple and abundant coolant had some serious drawbacks. First of all, water, being a poor lubricant, did not in many cases eliminate enough of the friction between the tool and the part being machined, resulting in high tool temperatures. In addition to this fault, water remaining on the machined metal parts resulted in rapid rusting of the finished parts.

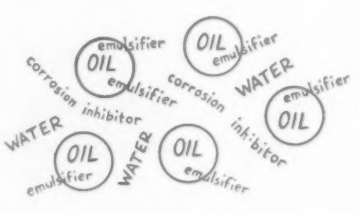
To overcome the rusting action, sodium carbonate, a fairly strong alkali, was added to water to form a coolant solution having a high pH value. This alkaline solution was the forerunner of modern water coolants. Raising the pH of the water did reduce the rate of rusting. However, prolonged contact of the solution with the skin of employees engaged in machining operations, in which this coolant solution was employed, resulted in an epidemic of contact dermatitis cases. This was all long ago but is presented here to illustrate some of the machine tool coolant problems and to introduce the subject of modern "soluble oil" coolant formulation.

The first advance in formulating coolants was the addition of a light oil, about the weight of sewing machine oil, to water to improve tool lubrication and thereby reduce the amount of heat generated by friction between the tool and the metal part being machined.

Today "soluble oils" are marketed as concentrates and diluted ordinarily from 20 to 1 to as high as 40 to 1 with tap water for use as machine tool coolants.

Emulsifiers

The term "soluble oil," in the chemical sense, is a misnomer. Actually both the concentrate and the dilution of the concentrate as used are dispersions of oil in water. The oil is not soluble in water but is broken up in tiny oil droplets and dispersed throughout the water in the same way that butterfat is dispersed throughout milk or cream. Chemically speaking, water is the enveloping or continuous phase and oil is the dispersed phase.



In order to stabilize the dispersion, one of a variety of chemicals called "emulsifiers" is added. An emulsifier is a chemical whose individual molecules have properties which cause a part of the emulsifier molecule to dissolve in the oil droplet and leave the other end of the molecule protruding from the oil droplet and dissolved in the continuous water phase.

The presence of an emulsifier, part of which is in the dispersed oil droplets and part in the water, prevents collisions and coalescence of the oil droplets and results in a stable dispersion called an emulsion.

Rust Inhibitors

Soap is commonly used in "soluble oil" formulations as an emulsifier. It works very well, producing stable oil in water emulsions but, unfortunately, it also serves as part of the diet of bacteria growing in the coolant. If the microorganisms consume too much of the soap, the coolant no longer contains a sufficient concentration of emulsifier and the oil-water emulsion "breaks" or separates into an oil layer and a water layer.

This potential drawback has led some companies marketing coolant concentrates to employ other types of emulsifiers which, due to their chemical nature, are not included or suitable in the diet of the microorganisms normally living in the diluted coolant.

In many of the modern "soluble oil" coolants, there is still another additive in addition to the emulsifier. In order to prevent or retard rusting or corrosion of machined iron or steel parts, a chemical rust inhibitor is added during formulation of the concentrated coolant.

The chemical used as a rust inhibitor practically always contains nitrogen in its molecules. The most widely used inhibitors are, in fact, derivatives of ammonia classified chemically as amines or ethanol amines. Since they are modified ammonia, these rust inhibitors retain some of the chemical properties of ammonia.

The property of chief interest here is the basicity or its caustic property. Some rust inhibitors are more caustic than ammonia and impart a high pH to the cool-

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WILLIAM L. LEA, Ph.D., is Director, Industrial Hygiene Division, State Board of Health, Madison, Wis. This article has been condensed from an article in the July-August-September, 1955 issue of *Wisconsin Safety News.*

NOW! Brand-New Extinguishers Make Kidde Line *Most Complete!*

Efficient, dependable and superior in design, the new *expanded* line of Kidde extinguishers now makes it easier for you to choose the *right* extinguisher for every fire hazard!

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3. Dry chemical. Air-pressurized in 5 or 10-pound capacities, cartridge-operated in either 20 or 30-pound portables. 150-pound capacity wheeled unit for large hazards.

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6. Foam and soda-acid. Seamless drawn brass or stainless steel shell, in 2½ gallon size. Also available: 40-gallon soda-acid and foam wheeled units.

For more information on these and other extinguishers in Kidde's new expanded line, write today for the new Kidde P-8 catalog.

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ant and, therefore, cause skin irritation. Other rust inhibitors on the market are no more caustic than ammonia or may be even less so and, consequently, are much less irritating to the skin.

From the foregoing, it is apparent that a "soluble oil" coolant is principally water, with oil dispersed throughout and kept dispersed with an emulsifier. The coolant may or may not also contain a nitrogen compound whose function is corrosion or rust inhibition.

A fairly recent development in coolant formulation involves substituting the dispersed oil lubricant with a special natural wax or a man-made polymer, both of which serve as lubricants. Aside from this difference, the more recently developed coolants are similar in principle and formulation to the "soluble oil" coolants.

There are four principal problems associated with the use of "soluble oil" coolants:

1. dermatitis
2. odor
3. emulsion breakdown
4. sanitation.

Dermatitis cases resulting from prolonged contact with emulsion coolants are rarely due to the light oil or lubricating component. Most cases are due to prolonged skin contact with too caustic a corrosion inhibitor. The corrosion inhibitor employed should not impart to the coolant emulsion a pH higher than 9.0, the pH of a fairly mild soap solution.

Emulsions having higher pH values cause the skin to be defatted at an excessively high rate causing drying and cracking of the skin and leave the skin open to secondary infection. The diluted coolant emulsion should have a pH value lying in the range 8.0-9.0.

The offensive odor sometimes given off from coolants, particularly on Monday mornings during hot summer months, is caused by the formation of hydrogen sulphide gas in the coolant due to the action of certain microorganisms. The microorganisms responsible are those capable of reducing or removing the oxygen from sulphates and converting the sulphates to sulphides. If there were no sulphates present in the coolant, no odorous hydrogen sulphide could be produced. Sulphate-containing chemical compounds may or may not be present in the coolant concentrate you purchase; however, they are practically universally present in varying amounts in all Wisconsin ground water supplies and surface water supplies.

Early emulsion breakdown or separation into two layers, oil overlaying or floating on the water, is usually caused by the action of microorganisms upon the emulsifying chemical. If it were possible to keep the coolant sterile, no trouble with either offensive odor or emulsion breakdown would occur. To the best of my knowledge, this is not possible at the present time, since no bactericidal chemical has been found which, when added in safe concentrations to the "soluble oil" coolant, will keep it sterile under the normal conditions of use.

At present, some plants periodically pasteurize the coolant using portable equipment. When this is

—*To page 120*

STASAFE CURTAINS AND TARPS NEVER LOSE THEIR FIRE RESISTANCE

StaSafe curtains, for vertical protection, are lightweight fire resistant glass cloth sealed with neoprene. Neither base fabric nor coating supports combustion. Oil and grease resistant neoprene protects against rotting, insures that curtains never become saturated fire hazards. Oils and greases wipe off.

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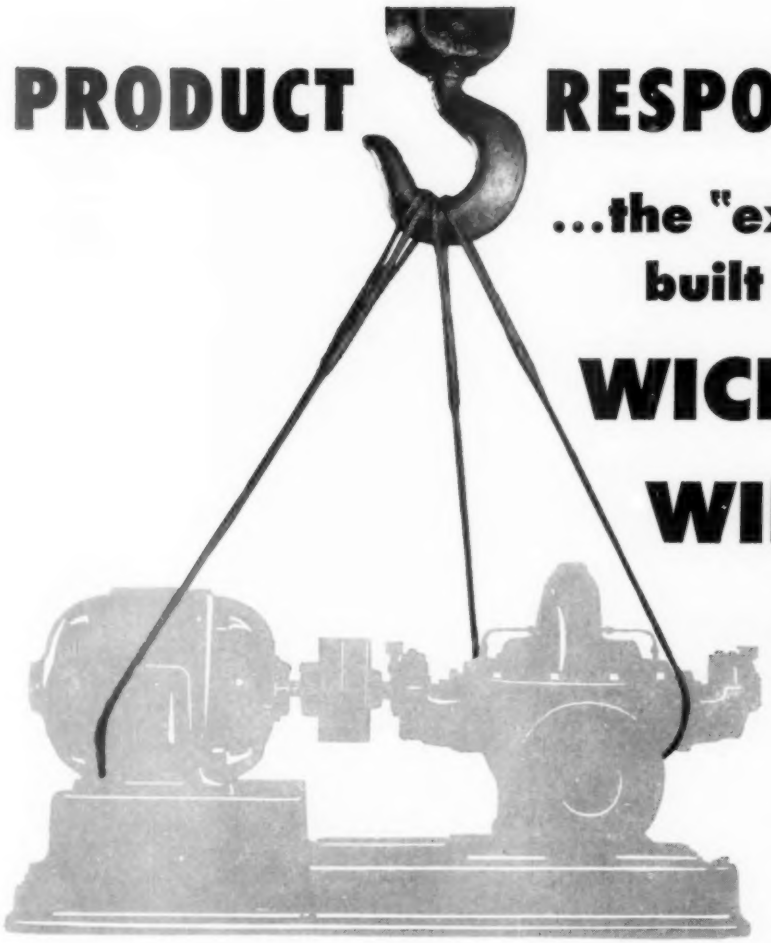

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New Method 'Drowns' Flames in Tank Fires

Within 30 seconds after this picture was taken this tank of flaming creosote oil, burning at full intensity, was completely extinguished by a new fire-control method which literally "drowns" flames by circulating cool liquid from the bottom of the tank to the surface. Koppers Company official (at right) opens the valve to begin agitation by compressed air during demonstration at company's Kobuta (Pa.) plant.

FLAMES RAGING in an 8,000 gallon tank of coal chemicals were extinguished in less than 30 seconds recently by "drowning" them in the cooler chemicals from the bottom of the tank.

At a special demonstration before fire department, insurance, and industrial officials at Kobuta, Pa., safety engineers of Koppers Company, Inc. deliberately fired the tank of creosote oil. Twenty-two seconds later the fire was out because the unignited chemicals at the bottom of the tank were circulated to the top so quickly that the temperature was reduced below the flash point of the liquid.

The demonstration climaxed two years of development by Koppers of a system of controlled agitation which had not previously been adapted to fighting fires in coal chemical tanks. A considerable amount of experimentation along this line previously had been done in the petroleum industry, notably by J. L. Risinger of Socony-Vacuum Oil Company.

The demonstration showed the versatility of this new fire control technique. Agitation of contents of the tank was accomplished by several different methods.

In separate tests compressed air and nitrogen were successfully used, despite the fact that air ordinarily spreads flames. In one demonstration the fire was extinguished using only compressed air through the normal inlets provided to assist in regular mixing operations.

Another method shown the group—and one unique to Koppers development—was agitation by recirculation of the liquid in the tank itself. This was done by pumping liquid from, and then back into, the tank through a jet mounted in the center bottom of the tank and directed upwards, thus stirring the tank contents.

From the demonstrations—of which there were 12 in all—the effectiveness of the new technique was shown. In all cases of the burning creosote oil, complete extinguishment was attained in between 22 and 46 seconds. In several demonstrations in smaller tanks even more volatile chemicals were ignited. Although extinguishment was not always possible in these tests, good control of the flame was maintained. Conventional chemical fire-fighting equipment then quickly extinguished the already-controlled flames.

Inside NSC

—From page 54

ing and photo-copying equipment, a printing department, a mechanical tabulating department, and a mechanical addressing department.

There are more than 200 telephones at NSC headquarters. Telephone and telegraph bills are about $3,100 monthly.

About 75 million items of safety material are printed and distributed from NSC headquarters each year.

And each year the mailman delivers about 500,000 pieces of mail to the Council.

An up-to-date first aid unit, staffed by a full-time nurse, is maintained at Council headquarters. A doctor spends a half-day a week at the office to consult with staff members on health problems.

An employee lounge, seating 100, serves sandwiches and hot lunches.

There are three conference rooms, each with a seating capacity of 25. All three conference rooms connect, however, so larger meetings can be held.

It's quite a set-up, National Safety Council headquarters. Come and see for yourself. You're welcome any time, and we're eager to give you the full fifty-cent tour.

During Congress week, a hospitality staff is on hand to conduct office tours. Many companies which bring a sizeable number of supervisors to the Congress make arrangements to take these groups through NSC offices. It gives a person a new respect and appreciation of the safety movement to see the big, bright, and busy home of the National Safety Council.

Dow . . . industry's most complete line of chlorinated solvents

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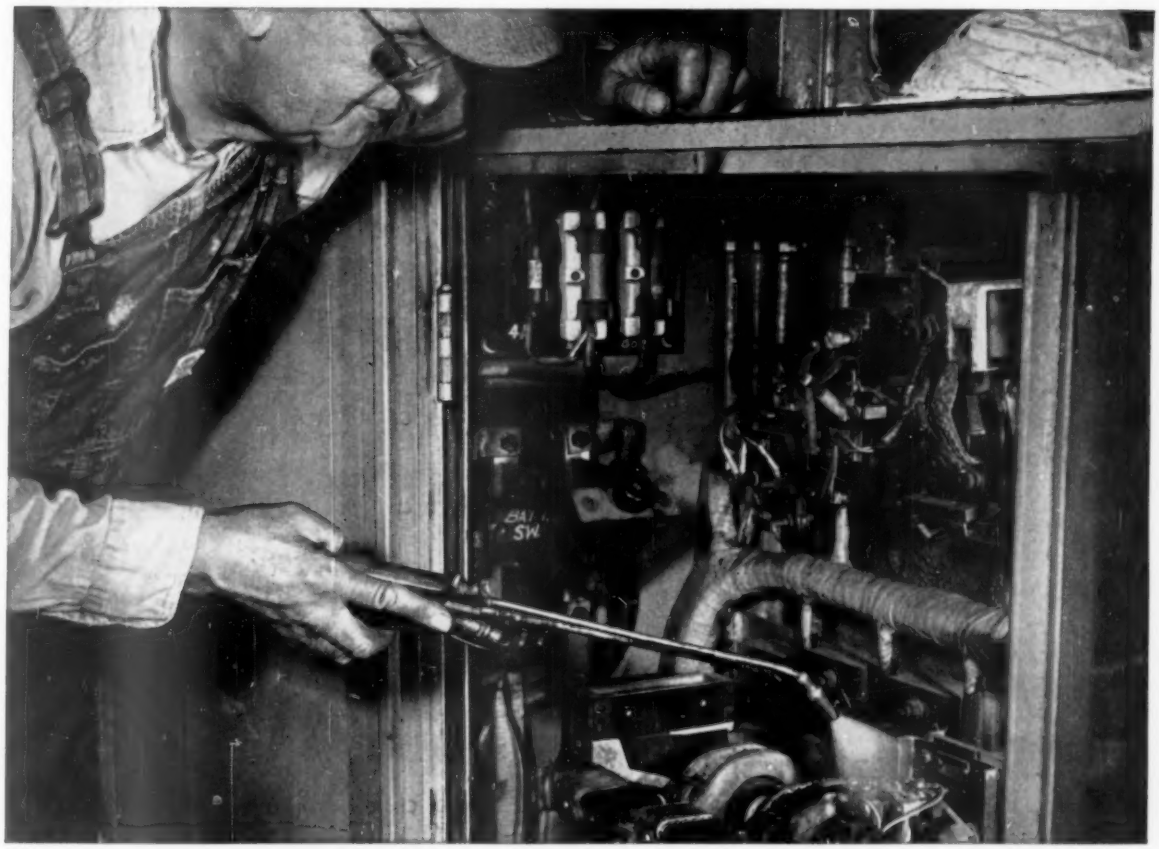

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How about *fire?* CHLOROTHENE has *no* flash or fire point by the Cleveland Open Cup Method. The U.S. Coast Guard has certificated it for use as an article of stores on board vessels*.

And *efficient?* You bet! CHLOROTHENE takes off tough greases, oils, tars, waxes and other contaminants with the cost-saving speed of carbon tet . . . yet for cold cleaning applications has extremely low corrosive effects on common metals and alloys.

Interested? No wonder. Better contact your local Dow distributor *today*. He's the man who supplies you with stabilized DOW TRICHLOROETHYLENE and PERCHLOROETHYLENE, too. For your distributor's location, or additional data on these superior solvents, return coupon to THE DOW CHEMICAL COMPANY, Midland, Mich.

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Automatic Watchmen For Cornell's Dorms

Every floor of Cornell University's new dorms is divided into three zones for fire detection by Kidde-Atmo tubing. Tubes terminate at one of these detectors where expanding air closes an electrical circuit and sounds an alarm.

CAREFUL planning and the application of past experience are reflected in the design, function, and safety of Cornell University's six new dormitories. The almost identical structures house 1,362 male students in single and double rooms. Each building is five stories high and features red brick and glass exteriors.

When the dorms were planned, the University's safety supervisor was asked by the superintendent of buildings and grounds and the architect to work with Factory Mutual to develop plans which would provide a high degree of fire safety at a reasonable cost.

Every effort was made to eliminate flammable materials in basic construction. The result is steel frame, concrete, and red brick construction. Windows are steel encased. Actually, the only wood used is in rafters and roof boards. Attic areas are fully automatic water sprinklered. Every floor is subdivided into corridors by self-closing, fire-resistant doors.

Automatic fire detection equipment was installed to achieve the degree of safety desired by Cornell and specified in New York State legislation. Systems which provide the round-the-clock protection required and eliminate the necessity for watch clock patrol stations in these dorms were designed by engineers of Walter Kidde & Co.

Each building's fire detection installation is similar. Each of the five floors of the dorm and its attic are classed as individual fire zones. Every room on each floor has thin diameter copper tubing crossing it at or near the ceiling height. The diameter of the tubing is approximately that of lead in a pencil, and the tubing can be painted over.

The ends of each strand of tubing terminate at a detector. (Actually there are three strands of tubing and three detectors on each floor.) If a fire occurs, the rate-of-temperature-rise in the space causes air in the tubing to expand. The expanded air moving in opposite directions through the tubing enters the detector and acts on two opposing diaphragms. This pressure forces them together and closes an electrical circuit.

Immediately alarms sound both inside and outside the building. Simultaneously, a warning is flashed to Cornell's telephone switchboard at Olin Hall, which is manned 24 hours a day. Operation of the attic sprinkler causes similar alarms to sound. Then the alarm is phoned to Ithaca's Municipal Fire Department.

While the alarm received at the switchboard indicates only which building is reporting trouble, on the first floor of the building concerned is an indicator which has six lights . . . one for each floor and one for the attic. Upon an alarm, this indicator shows which fire zone initiated the alarm.

This type of detection equipment also provides "break glass" devices in each building to report fires. When manually actuated, the same alarms sound.

Each system at Cornell operates on direct current from four wet cell batteries. One hundred twenty volt alternating current continuously is converted to 12-volt direct current which keeps each dorm's batteries fully charged. Power to operate the systems is drawn from the batteries. Should outside power fail, the batteries will keep the fire detection alarm systems fully operative for 72 hours. Detection systems are tested weekly, the batteries checked monthly, and the tubing inspected every six months.

Knowing that the clang of a

Every floor has a manual fire alarm pull box tied into the alarm circuit. The floor's fire alarm howler is above.

Veteran Chief takes post-graduate training at Ansul fire school...you can too

Throughout his entire career, Floyd Dumas has practiced what he preached . . . *you can't have too much fire training.* So it was logical that this veteran of 29 years' experience should attend Ansul's Fire Training School. As Chief of Fire Prevention for Parke Davis & Co., one of the nation's leading manufacturers of pharmaceuticals, his responsibilities are tremendous. The information Floyd took home from the Ansul School was passed on to each member of his staff who will be better firefighters for it.

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Training at the Ansul Fire School is of the practical kind. The classroom is Ansul's five-acre test field containing all the latest equipment, and staffed by expert instructors. You owe it to your business, to your position, to learn more about the Ansul Fire Training School.

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fire bell often causes confusion, the safety division promotes frequent fire drills.

The program has been highly successful. In spite of being responsible for the safety of 10,000 students, 4,000 faculty and staff members, and 223 buildings, the safety division called in Ithaca's Municipal Department only 11 times in 1954, a typical year. Damage from each blaze averaged only $150.

Working under the safety supervisor and responsible for fire safety only is the housing safety inspector. In addition to his other duties, the inspector and his three assistants service and recharge over 2,800 portable fire extinguishers on the campus.

PERSONALS

Ray P. Teele, a member of the Photometry and Colorimetry Section of the National Bureau of Standards, has been appointed a member of the National Research Council. He will represent the Illuminating Engineering Society in the Division of Engineering and Industrial Research for a three-year period.

Mr. Teele has gained international recognition as a member of photometric fields. His work covers the maintenance of the national photometric units of luminous intensity (candlepower) and luminous flux; developing and maintaining standards of illumination and photometric brightness; participating in the national and international standard comparisons; and evaluating candlepowers of different colored lights by studying the luminosity factors of the human eye.

SAFETY DIRECTOR

To supervise the safety activities of natural gas transmission company. Location: Detroit. Must be willing to travel. Salary open. Include resume of experience and education. All applications treated confidential. Address Box 414, NATIONAL SAFETY NEWS.

SAFETY ENGINEER

Engineering degree required plus 1 to 3 years' experience in the safety field. Duties involve all phases of safety program in nuclear research and development laboratory located in the Chicago area. Send resume to: R. H. Starrett, Argonne National Laboratory, Post Office Box 299, Lemont, Ill.

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A contestant maneuvers the obstacle course in the annual Mobile Air Materiel Area forklift roadeo held at Brookley Air Force Base, Ala., September 28-29. Entrants were scored on railway car stacking, maze driving, vehicle inspection, and pallet and barrel stacking.

Attending the forklift roadeo were (l. to r.) S. C. Chang, deputy director, Port of Keelung, Formosa; Col. Leonard F. Carter, chief of ground safety, Air Materiel Command, Dayton, Ohio, and Hugh H. Jachobs, State Docks protection and safety supervisor.

Forklift Roadeos Cut Air Force Accidents

TWO years ago the Ground Safety Division at the Mobile Air Materiel Area (MOAMA), Brookley Air Force Base, Ala., surveyed the installation's forklift operations and decided that something had to be done. Not only were employees suffering needless injuries, but accidents were slowing down movement of materials and damaging cargo.

Noting the success of a motor vehicle roadeo conducted on the base, the Ground Safety Division decided on a forklift contest or roadeo in hopes of cutting material-handling accident and cost rates and boosting employee morale.

When the safety men began setting up such a program, however, they found themselves completely on their own. No other command in the Air Force had conducted such a contest and queries to several forklift manufacturers, insurance companies, and automobile associations brought only a single, inadequate training guide. If MOAMA was to have a forklift roadeo, it was up to Ground Safety to devise one.

The first step was to study all forklift accidents and operations to determine the major causes of mishaps. Then an obstacle course was designed to simulate these problem situations. Contest rules and eligibility requirements were drawn up and on February 24, 1954, the first forklift roadeo was held.

Only forklift operators employed for at least 24 months and having an accident-free record for at least 12 months prior to date of entry were eligible.

"Hurt on the machine nothing! My wife forgot I was on the twilight shift and clouted me for getting home after midnight."

A 16 mm. movie of the roadeo was shown and narrated by Safety Director E. L. Keefer at an Air Materiel Command conference in Oklahoma City and later loaned to other air materiel areas.

The roadeo was credited with a decrease in accidents and a noted improvement in employee morale and MOAMA decided to make it an annual event.

The latest contest, held September 28-29, attracted 150 drivers. Entrants were judged on vehicle inspection, maze driving, railway car stacking, pallet stacking, and barrel stacking. Trophies were presented to two drivers skillful enough to avoid such entries in the judges' score sheets as "choked too much," "excess backing," "hit floor with fork," and "load not well centered on fork."

Only a two-point margin separated the driving scores of champion B. A. Brewer and Leslie M. Bell, second-place winner.

Guests present for the events included Col. Leonard F. Carter, Air Materiel Command's chief of ground safety; Hugh H. Jachobs, Mobile's State Docks protection and safety supervisor, and S. C. Chang, deputy director of Port of Keelung, Formosa.

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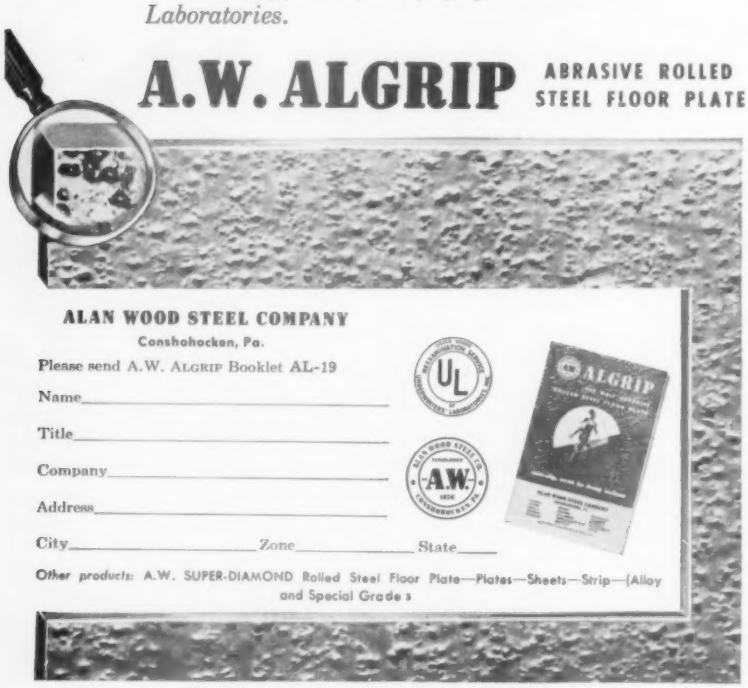

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Safety Library

—From page 42

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Better Value

Behind the Scenes

—*From page 72*

tee made up of one foreman, one union member, and myself.

Q. How are safety suggestions handled?

A. By an investigation committee made up of members of the safety committee. Employees submit recommendations to foremen or other committee members. We all have badges, so everyone knows who is on the committee. The suggestions are presented at committee meetings and then to management, in the form of minutes of the meeting. Management must approve recommendations involving changes or expense; others are handled by the safety millwright or the foreman himself.

Q. What are the major safety rules of your program?

A. There are six:

1. Work safely at all times and regard the safety of others.
2. Good housekeeping.
3. No horseplay.
4. Only authorized operators are allowed to ride moving equipment such as carriers, lifts, cranes, etc.
5. Strip and pile loads safely.
6. Report to first aid for treatment of all injuries.

Q. What has this program accomplished?

A. A frequency rate of 4.32 with 1,617,688 man-hours worked in 1953. This table shows how the frequency rate has been reduced every year since the start of the program:

Year	Frequency Rate
1945	212.00
1946	145.22
1947	135.40
1948	114.77
1949	78.07
1950	52.80
1951	13.26
1952	6.05
1953	4.32

Evaluation of Hearing

—*From page 31*

try with part-time nursing service and felt that these contacts with industry would assist them in selling more of their services to the public. Besides, these worthy community organizations need the extra margin of income. In the meantime, the plants assess themselves 25 cents per man on their payrolls to purchase an audiometer and conduct an audiometric examination program.

You can't evaluate hearing properly in just any old place. Noise levels must conform to standards established by the AAOO. For example, in the band of 75 to 100 cycles, the permissible level is 45db. In the next band of 150 to 300 cycles, it is 35db. If this is not done, environmental noise invalidates the audiogram. If you think it is an easy matter to meet these rather rigid requirements, ask someone who has tried it. Many plants where noise levels are high everywhere feel that the only solution is a commercial installation which carries a guarantee of attenuation or removal.

How can you get a noise level survey?

An insurance carrier or health department is prepared to do this. It is possible that the noise levels are not too high to acoustically treat a moderately quiet place without too much expense.

Shall we get a small examination room or a large one? The larger room accommodates both the audiometric technician and the subject.

The answer usually depends on space requirements. The AAOO seems to favor a smaller room with a technician outside the booth. This is constructed with a rather large observation glass installed so that the technician can communicate with the subject through signals. Some feel that the contact of technician and subject brings about valid audiogram data. This is a matter to be decided on an individual basis.

Audiometers range in price from $150 to approximately $500. They are no longer approved by the American Medical Association's Council of Physical Medicine. I would invite representatives of available companies to explain what they have to offer because each instrument presents unique features which, with the help of the nurse, technician, and the purchasing director, will have to be evaluated. Talk to nurses and technicians who are already using audiometric equipment.

Remember that you are screening workers using air conduction threshold examination techniques and those having hearing losses are sent to the otologists for more complete evaluations. For this reason, an expensive instrument with extra gadgets is hardly a necessity, unless you have a consulting otologist come to your plant for the referrals.

Having an audiometric examination room meeting the required noise levels and an instrument with the frequencies recommended by the AAOO, we are

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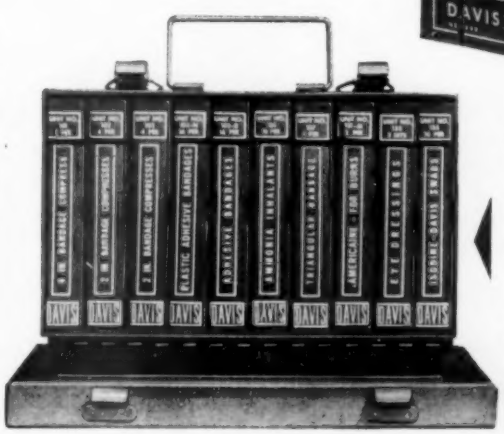

The continuous red line across the face of the D-Carton shows that none of the cartons has been opened.

A break in the red line, as at the third carton in the illustration, signals that they have been opened and should be checked for replacement before the contents have been used up.

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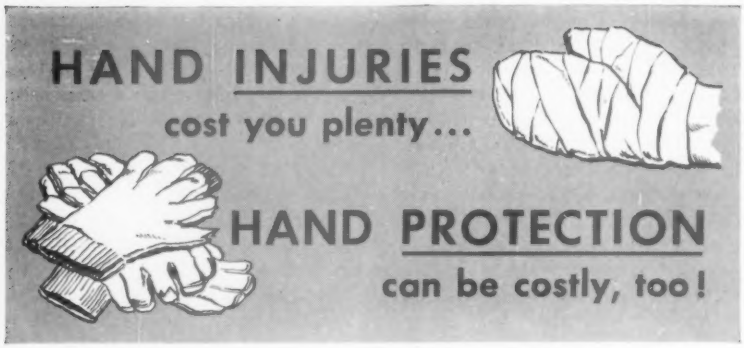

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ready to train our technicians. Nurses and X-ray or laboratory technicians are naturals for this work but alert responsive personnel from a general office also become skilled technicians. According to the AAOO, about 12 hours of training time, including an hour or two of actual practice with the instrument, is recommended to obtain valid audiograms.

There is much more to audiometry than the mere pushing of buttons and dialing. Preparation of the subject for procedure and understanding individual differences is paramount. There is a psychology of obtaining responses from the individual and the ability to teach. If the local otologist cannot find time to assist in this part of the program, find out if the nearest college is holding short courses for nurses or technicians. These are excellent because the otologists who conduct such training programs give the student excellent background material which is motivating and adds interest to the job.

Audiometry can be a boring routine job or it can be a highly interesting and challenging skill. We get more accurate data when more complete training programs are given. Usually it is necesary to include physics, anatomy and physiology of the ear, care and operation of the instrument, the recording of audiogram data, and the techniques of obtaining responses.

At this time, the local hearing conservation committee reports back to its membership that things are now ready to go. Each new worker is given an appointment *before* he begins the job, and the technician administers the measurement. This takes 10 to 15 minutes, including filling out the history and making a duplicate record for the station files.

I do not believe you can make a valid audiogram in five minutes, considering the fact that sometimes it is necessary to repeat frequencies when extraneous noise is present or if a subject is slow and needs more time so that one can be sure of his responses.

A good technician always explains the procedure carefully,

demonstrates how the audiometer works and then allows the subject some actual practice, probably two or three frequencies, before recording the data permanently. A copy of this original audiogram is mailed at the end of the working day to the employer who never fails to inform the man if the record indicates the need for otological diagnosis.

In one state, audiometric data cannot be used as legal evidence unless the man is given the results of his evaluation at the time it is made. To implement this vital step of referral, some industries pay the worker part or even all of the cost of the diagnosis.

Figures indicate that approximately 25 out of 100 men seeking employment have hearing losses indicating the need for medical attention. In other words, in the absence of this audiogram data, in 25 employees out of 100, these plants would be purchasing previous employers' hearing losses.

At the end of each month, each industry is billed for the hearing measurements it received. A recent survey indicated that the average cost to industry per examination in smaller communities utilizing cooperative methods was $2.

Where the program breaks down in actual practice, I regret to say, is that not enough men get to the ear physician and we need to emphasize this part of the program. The hearing conservation committee continues to serve the official administrative body for the plants and it is appointed each year by the executive committee of the chamber. This group sees to it that proper financial arrangements are carried out with the agency, whether it is a hospital, clinic, private physician, visiting nurses association, etc. Quarterly reports are made to the chamber just as other committees report.

In one city, 100 per cent of the industrial firms participated and even the fire and police commission and welfare department asked if they could use the facilities as part of their pre-employment training and processing. Employees in these non-noisy occupations were referred by their employers to otologists if the audiograms indicated hearing losses. One employer said, "It is an inexpensive procedure and one which the new employee appreciates." I believe you can sell the idea of hearing conservation more easily if you do not use the "fear approach" because of impending claim costs.

I have given you a pattern which has been used successfully in establishing hearing measurement facilities in small communities. It works because of the age-old principle that when people understand a new development and share in the responsibility for carrying it out, the program cannot help but be successful. In several of our small communities, the leading industry purchased an audiometer and gave it to the hospital so it could be used by all the doctors for the benefit of all the people.

Ear Protection Programs

The heart of the problem is "How to get ear protection on the

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man!" In the early days most of us were quite discouraged about this and many of us gave up, but we can now take a more optimistic attitude. Each day I hear of more instances where 100 per cent programs are in effect.

Recent research of the AAOO and some of the larger industries, such as Allis Chalmers in Milwaukee, has proved that ear protection devices work. We now know that a man who wears them faithfully is practically guaranteed against further loss through noise exposure. The average ear plug attenuates and reduces noise from 20 to 30 decibels, bringing the most dangerous noise levels down to a safe exposure. We also know that the wearing of plugs does not interfere with signals or oral communications—in fact, it improves them.

We have failed in the past because we let ourselves be talked out of it by the men themselves, We must propagandize the use of ear protective devices with the same vigor and energy that we have used with eye protection and safety shoes.

Many plants I have visited have 100 per cent ear-protection programs because they have carried on vigorous long-range education. Some plants have compulsory programs with the features drawn up in their labor contracts. This program is new among workers and anything new must be interpreted and reinterpreted.

I think I have a good analogy. In the exhibition hall at the Safety Congress, I asked the exhibitor of a curtained enclosure for isolating noise at its source whether it bothered the operator to be enclosed. He replied that men now spray in paint booths while a number of years ago they probably sprayed in the open, and not too many years ago men welded in the open while they now do their work in enclosures. He felt that men in noisy jobs would also have to learn to work in isolation to protect other employees from harmful noise.

The world is changing. New things come and we have to adapt ourselves to them. I doubt if anyone came to the Congress riding a bicycle.

Probably the person best prepared to supervise ear protection is the nurse or first-aid man. This person might discuss ear protection at safety meetings and show the different types. One such plant had a meeting and the nurse suggested that six men try different types of ear protective devices and report back at the next meeting, which they did. It was reported that speech and warning signals could be heard easily with protection. One man who worked in a 100 decibel noise level area said that when he got home he could enjoy television much more because the ringing in his ears was gone. These techniques help us sell programs.

Some industries have learned that is helps to have a variety of ear protection equipment rather than to push a single type. The person in charge of the program says, "Try this one and come back in a week and tell me how it works. We have other kinds and

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we can try until you have a good fitting." If we have a choice, it makes the proposition more attractive.

We must keep whittling away until each man is using the proper ear protection. Here are some pointers to help us:

1. Ear protection is a long-range educational program enhanced by posters, demonstrations, and explanations at safety meetings. It is a selling job best taken care of by the doctor, nurse, or first-aid man trained in the fitting and handling of ear protection devices.

2. All devices seem to show about the same coefficient of reduction but they work better in the high frequency noise levels than the low ones. The fit of the device is important. Lubrication promotes the efficiency of all types. If they are not too comfortable, they may not be doing their job. Some temporary discomfort must be expected if protection is the goal.

3. Give the man a choice of ear protection devices and keep a string on him until he finds something which works. It is a well known fact that individual ear canals differ in size. A small device may be well suited to the left ear but a medium one may be indicated for the right ear. Obtain a case displaying all of the plugs you can get. Let the man see the different kinds.

4. Wear different types of protection yourself and carry on a personal research project. How can you tell a man convincingly about the comfort and helpfulness of ear devices unless you can say, "I have worn this kind myself." Give the man suggestions based on your own personal experiences.

5. The safety engineer and nurse must shoulder this responsibility for the job or it will not get done. Ear protection devices have been developed for every noisy job and until we can abate the noise at its source—our primary job—we shall continue to find new ways to get them on the men.

"Heavens! I hope you haven't broken anything. I want to buy new drapes this month."

Trades and Services Section Begins Program

THE Trades and Services Section of the National Safety Council, given provisional status last October, has begun work on a series of activities designed to fill the expanding needs for safety services of the more than half of American businesses classified under this category.

Organized as a committee in May 1955, the Trades and Services section will operate with many of the normal functions of a full section in the anticipation that it will qualify for full section status next October.

Officers elected to serve for one year are chairman, J. Neil Moore, Greater Chicago Hotel Association, Chicago; vice-chairman, Harvey Siegel, R. H. Macy Company, Inc., New York, and secretary, H. H. Cochran, Jr., Safeway Stores, Inc., Vernon, Calif.

—*To page 104*

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SEE INSTRUCTIONS ON REVERSE SIDE

The Council staff representative is Raymond C. Ellis.

Three major divisions have been established within the group —Mercantile and Warehousing, Restaurants, and Hotels. A monthly newsletter is prepared for the first two of these divisions and a bi-monthly accident prevention bulletin is issued in cooperation with the American Hotel Association for the latter. Members of the Hotel Division will also receive, on intervening months, a fire prevention bulletin prepared by the American Hotel Association.

Special posters are being prepared for the various divisions. A number of studies are being conducted or are being contemplated to acquire statistics of value in analysis of both employee and customer injuries. Also under review is a cause code.

Warehouse inspection forms are being studied by various organizations with warehouse and storage facilities and problems.

Special studies are conducted as requested by members of the provisional section. For example, a recent study covered accidents to butchers and truck drivers in food chain store operations. Currently, a study is underway on accidents involving children using coin-operated toys, such as cowboy horses, jet planes, and rocket ships.

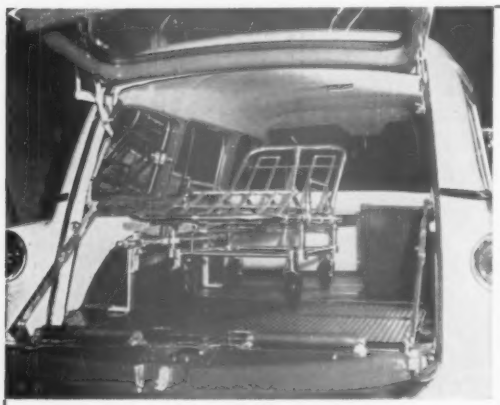
J. Neil Moore, Greater Chicago Hotel Association, recently elected chairman of the Council's provisional Trades and Services Section.

A reference guide now in preparation for each of the divisions will provide ready access to the many materials currently available from the Council under many different headings and in various catalogs and service guides.

Newsletters, posters, and reference guide services are now available as primary or secondary option to Council members whose organizations include units classified within mercantile and warehousing, restaurant, or hotel operations.

Division chairmen elected are: Mercantile and Warehousing, Charles Engler, assistant manager, Loss Prevention Department, Montgomery Ward and Co., Chicago; Hotels, Kenneth A. Lane, director, Employer-Employee Relations Department, American Hotel Association, New York; Restaurants, R. A. Bowman, assistant to the general manager, Harding-Williams, Chicago.

What this country needs is a ladies' shoe that's larger on the inside than on the outside.



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Projecting Your Message

—*From page 46*

provided with a roll of transparent material that may be used to write or draw on with a grease pencil. It has a decided advantage over the blackboard since the instructor is facing the group as he works; eye contact is also maintained when other materials are presented.

Opaque Projectors

Opaque projectors are similar in many respects to the overhead projector. Some of the new, blower-cooled types reflect sharp, brilliant pictures over the entire screen. Many are equipped with a built-in pointer, making it easy to point out details and emphasize key points in a discussion.

Safety instruction cards, detail sheets, posters, and similar materials may be used to good advantage in this type of projector.

At least one company makes a combination projector that may be used for transparent projection as well as opaque projection.

New Guide Series Covers Industrial Hygiene

A SIGNIFICANT development in the field of controlling occupational health hazards in industry comes with an announcement by the American Industrial Hygiene Association of a new group of informative bulletins called *Hygienic Guide Series.*

Concerned with common industrial materials which present occupational health hazards through toxicity and acute and chronic irritation, the current series summarizes the latest authoritative and substantiated information on aniline, benzene, formaldehyde, amyl acetate, acetaldehyde, sulfur dioxide, hydrogen sulfide, butyl alcohol (N-butanol), cadmium, and carbon tetrachloride.

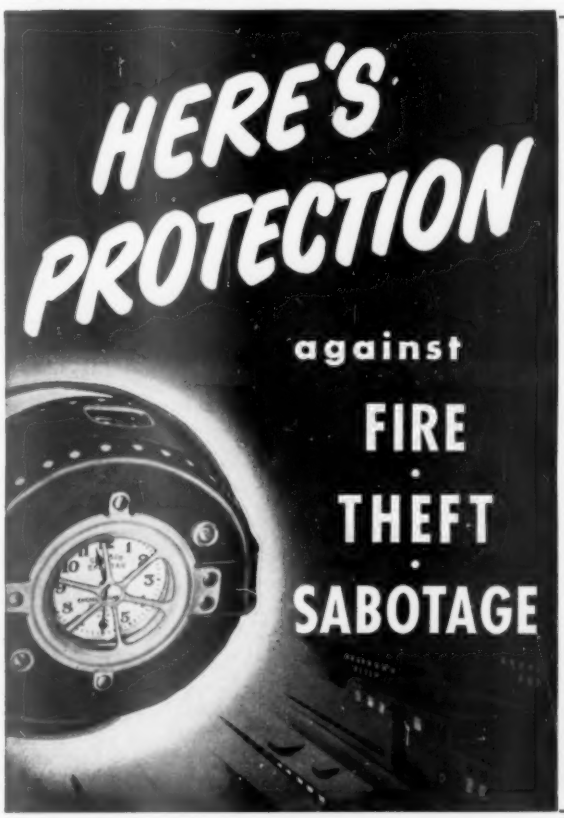
Each Hygienic Guide will be prepared by leading governmental, medical, and professional authorities on its subject and will include information on the following:

1. Maximum allowable concentration for both short and long term exposures.
2. Significant chemical and physical properties.
3. Major uses.
4. Evaluation of exposures.
5. Engineering control procedures.
6. Medical control procedures.
7. References to the literature.

Developed through the Hygienic Guides Committee of the AIHA, these guides will bring together all of the pertinent information required for occupational injury hazard evaluation. They are planned to cover a wide range of the common industrial chemicals and materials. Other guides will be prepared on such topics as new chemicals as they are introduced to the industrial market, radiation hazards, noise, and air pollution control.

Present plans are to publish five guides in each issue of the Association's Quarterly. They will also be made available in single sheet reprint form.

Hygienic Guide sheets may be obtained from the American Industrial Hygiene Association, 14125 Prevost, Detroit 27, Michigan, at 25 cents each, with special prices for quantity orders.



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Machine Guarding

—*From page 23*

a minimum amount of travel and lifting to do. The use of conveyors and skids to feed the raw stock should be considered, as well as chutes or gravity feeds to remove the finished part from the machine.

2. The work height. An optimum work station height in relation to stand-up or sit-down method of operations should be provided. The proper height and type of chair or stool must be determined. The elbow height of the individual is the determining factor in minimizing operator fatigue. Generally an effective work level of 41 inches from floor level to the top of a jig should be considered. Also chair height should be from 25 to 31 inches. Work positioners can be used to elevate the raw stock to the proper working height so that the operator can feed the machine with a minimum of lifting and traveling.

3. Machine speed and "on" or "off" controls should be readily accessible. The position and design of machine controls such as dials, push buttons, levers are important factors. Recent research has demonstarated that the shape and dimension and force required to operate controls has a lot to do with what an operator likes about certain machine safeguards.

To make controls foolproof from an accident prevention standpoint, they should have a standardized location on all machines of a model or type so that operators can be switched around on various machines and still be protected effectively.

I remember an incident where an operator normally assigned to a calender was transferred to another calender. The new machine had the controls in the same position but the on and off button locations were reversed. While operating the calender, a helper got his hand caught in the rolls, and in panic to stop the machine, due to the reversed button location, the machine was kept in operation, dragging the helper into the rolls.

4. Material-handling aids should be provided to minimize manual effort in handling raw materials and finished parts to and from machines. To assist man to feed or operate the machine, overhead chain hoists, belt and roller conveyors, and work positioners can be utilized. The use of such equipment provides a minimum of manual handling with a high degree of safety.

5. Operator fatigue. Operator fatigue at a machine station is usually a result of a combination of physical and mental activities and not always a result of energy expenditure. Causes of fatigue at work include excessive speed-up, boredom and monotony due to repetitive machine operations, and awkward work motion. Equipment designed according to

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physiological laws will do much to prevent accidents caused by fatigued operators.

6. Excessive noise is more than an annoyance. It can be a definite occupational hazard, causing permanent impairment of hearing. To protect machine operators, vibrating machines can be isolated by putting them on dampening mounts of rubber, cork, springs, or other material.

The best example of man matched to a machine is the typical automotive assembly line where optimum height of work station, conveyors and stock positioning tables are established. Operating pedals, treadles, and hand levers are designed to minimize manual effort. Spot lighting is provided to supplement general illumination. The result is plainly evidenced in an efficient, smooth and safe operating assembly of multiple parts by many employees.

We should not overlook the coming age of automation. With the automatic production line, the worker is not required to feed or operate the machine. Generally a conveyor is the basic machine or unit around which production equipment is built.

The automatic factory is still a long way off in many plants but from present installations on large production runs we can see what future trends wil be and so devise our guarding efforts to this goal. The main point is to develop or improve an operating cycle such that the operator is not required to place his hands between moving machine parts or machine parts that are intermittently at rest. The greatest modern development in machine guarding is through the combined use of feeding devices and some type of die, tool, jig, fixture, or clamping device to facilitate fast accurate indexing and processing of material.

Many types of feeding devices can be used and are available commercially and applicable to dies or tools built for some specific purpose. Others can be designed and built as a part of the die or tool. On punch press tools, for example, the use is toward push, follow, slide, gravity, magazine, dial feeds. It should be remembered that when feeds are used it is necessary to provide a method of ejecting the part from the die. Ejection is usually accomplished by the use of air supplemented by spring pads.

On many operations, feeding devices cannot be used due to the nature of the work and the short duration of a run. As a consequence many of the point-of-operation guards universal in nature should be used. Some operations can be guarded effectively with guards available commercially. Others require custom-built guards developed through extensive study of the job by both operating and safety departments.

We are all familiar with the basic types of guards available. Based on their functions they are:

1. Those which prevent access to the danger zone but allow feeding and removal of material. This protection would be considered as individual die guards,

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enclosures, covers, and barricades. In the design of this guard it is common practice not to have any opening over ⅜ in. in width or height.

In many cases, the ⅜ in. opening is not sufficient to provide space for passing the material to be processed through or under the guard. As the width (or height) of the opening is increased to allow for the entrance of material, the additional space permits the operator to reach further inside the guard. The problem then is to stop movement of the hand inside the guard at a safe distance from the danger zone.

To solve this problem a research project was set up in our mechanical laboratory to determine basic facts about allowable openings and locations of guards. Test fixtures were constructed representing types of commonly used guards and with varying fixture set-ups. The amount of travel through the different sized openings was recorded. As could be expected, there was a great variation in the individual hands tested of men and women and the distance individual hands could be extended through the openings. A ¼ in. opening was found to stop hand travel in the danger zone of all subjects tested. Due to variations in hand sizes and inaccuracies to be expected in maintaining a ⅜ in. opening it was decided to maintain a ¼ in. opening for the first 1½ in. from the danger line.

A barrier guard, based on the dimensions of man, provides positive protection to the operators. The guard, permanently attached to a machine or pivoted or hinged and interlocked as necessary, can be used on punch presses, shears or in-running rolls.

2. A second type of guard is that which controls the operator's movements during an intermittent travel of a machine part. This would consist of a two-hand control or step back station positioned so that to operate the machine the operator must be a safe distance from the point of operation during the movement of a machine part.

Basically there are three types of two-hand trips—electric, pneumatic, and mechanical. On mechanical type clutch presses, electric two-hand trips with a single stroke control are often used. The hand trips must be activated simultaneously to trip the press. One of the hand trips cannot be eliminated or tied down as a control relay opens the circuit and the press cannot be activated. A re-set button must be positioned to close the circuit. Press repeats can be prevented through the use of this single stroke control which allows the press to make only one stroke for each activation of the clutch. However, a selector switch adjusted by responsible personnel enables the press to be changed from this single stroke control to continuous run.

On friction type clutch and hydraulic or pneumatic presses, shears or paper cutters, a cycling control can be installed in conjunction with two-hand trips. Such a control will hold the clutch engaged automatically for a portion of the work cycle. Generally each operator is required to work two-hand switches until the ram has reached a pre-determined safe point. The cycling control is activated controlling the remainder of the stroke thereby allowing one operator to stock pile and the other to prepare for the next work item. It should be

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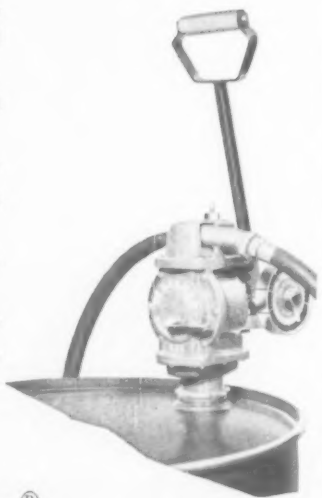

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noted that on friction type clutch presses that the down stroke travel of the ram will be only stopped when the operator removes his hand prior to the time which this cycling control takes over.

A new development in the use of two-hand trips systems is that of utilizing the limit switches as nesting gauge. The switches are so installed to make the press inoperative unless the work is properly nested in the die.

With the installation of two-hand trips the tendency has been to do away with the foot pedal as a tripping medium.

3. A third type of guard is that which prevents operation of a machine until the operator has removed his hands from the danger zone.

The latest development in this type of guarding is the use of photo-electric relays and other electronic controls. As we know, the photo-electric relay consists of a beam of light. When this light is broken by the press operator's hands, the start or completion of the press ram stroke is prevented. Greatest success has been the application of these units on hydraulic, or friction drive clutch presses, shears, and brakes, as the ram or blade travel stops immediately when the light beam is broken.

4. A fourth type of protective device is that which stops a machine in case of an emergency. Shut-down devices on rubber mills, calender rolls, and dough breaks are an example of this protection. Generally, the mills are protected by trip bars or pull cords that operate brakes when contacted by any part of the operator's body. The type of brake used for stopping mills can be a plugging switch (reversing action) dynamic, regenerative, magnetic, and mechanical brakes. Dynamic and regenerative brakes are the most efficient and are relatively free of maintenance.

A recent development in emergency shut-down devices is the use of a photo-electric relay to operate a braking system. Also the photo-electric cell can be so installed as to separate the rolls when the braking system is in operation.

5. The fifth type of guard is the pull-back or sweep guard which either pulls back or sweeps the operator's hand or hands from a danger zone during the travel of a machine part. The pull-back guard utilizing the hand strap actuated by ram action is one type of guard in this category. There are many types of sweep guards involving the principle of a rod or rods moving across the danger zone timed with ram travel.

In addition to these basic types of machine guards there are other machine attachments that are provided as production aids and, while not termed machine guards, they actually provide much operator protection. The use of compressed air or mechanical feeding feeding devices, floating idler rolls, rod or angle iron attachments at a nip point intended to aid an operator to feed material serve as excellent machine guards. The use of a feed table

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and hold-down roll, while intended as an aid to efficient feeding of material, is the most effective way to provide protection to the operator on many in-running rolls and vertical shear exposures providing the hold-down and feed table are positioned to prevent access to the shear or nip point.

We must recognize that through the years a remarkable improvement has been made by industry in regard to the safety of the worker. Safer machines, better plant layouts, more materials-handling equipment have been provided. This does not mean that all our old standard hazards have disappeared. We have many machine exposures left and being well established in some plants they are difficult to handle.

What we should remember is that future guarding progress requires a cooperative endeavor of engineering and operating personnel to coordinate man and machines into a safe, efficient operating team.

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Open Safety Research Lab in San Francisco

EXPERIMENTS in unsolved safety problems will be conducted by Industrial Indemnity Company in a new research laboratory at 500 Howard Street, San Francisco, by members of the firm's Safety Engineering Department. Noise control, toxic gases, auto safety, and other problems will be studied by Chief Safety Engineer Tom Soule and Project Engineer Gil Rodier.

To further the study of noise hazards in industry, the laboratory is equipped with an octave band analyser, a noise-level meter, an oscillograph, and an audiometer. Tape recordings made in factories will be analysed and preliminary studies of noise suppression devices can be developed in the laboratory, saving the confusion and cost of experimentation in the plant.

The laboratory is also fully equipped to test toxic air and gases. Counts can be made of harmful dusts, such as silica, and a flame safety lamp has been developed for use in wineries and silos, where lives have been lost in the past due to lack of oxygen.

A mock-up automobile has been constructed to study the "packaging" of passengers. Among the more interesting developments is a safety belt which sounds an alarm if the driver forgets to fasten it. Industrial Indemnity has encouraged the use of safety belts by offering a 10 per cent discount on its broad form auto policy to car owners who install approved safety belts. Also, safety belts have been installed in all company cars for the past year with notable success.

All testing, research, and development in the laboratory will be under the direction of Tom Soule, for 23 years chief safety engineer for Industrial Indemnity. Mr. Soule recently supplemented his knowledge of acoustics with a course on noise control in industry, conducted by the Massachusetts Institute of Technology at Cambridge. The course was taught by leading acoustical engineers of M. I. T. and Harvard and the consulting firm of Bolt Beranek & Newman, Inc.

Vertical Transportation

—*From page 56*

speed permitted for new installations. However, no other parts of the installation would have to be made to conform to the rules for new installations.

Another new section of the code is on hydraulic elevators. Previous editions contained only a few general rules relating to hydraulic machines, tanks, and valves. The 1955 rules cover complete requirements for all parts of hydraulic installations including design data and formulas for cylinders, plungers, valves, piping, fittings, and tanks.

All these elevators are required to be of the plunger type and must be equipped with electrically-operated valves. The latter provision, together with requirements for an anti-creep device, permits the safe installation of hoistway door interlocks and car gate or door electric contacts which are mandatory the same as in electric elevators.

Invalids or others whose physicians forbid stair-climbing often use a private residence elevator. The new code, for the first time, includes a section of the "know-how" of safety in these elevators with a maximum rated load of 200 pounds, and with a speed of not over 50 feet a minute.

Sections of the new code contain the following additional important changes:

1. Measures which will practically eliminate injuries to hands and feet caused by the moving parts of escalators, particularly in the case of small children.

2. Elevator and dumbwaiter overhead beams are required to be of steel or reinforced concrete.

3. All wiring, other than that related to the elevator, is prohibited in elevator hoistways.

4. The protection of spaces which are used as passageways below elevator and dumbwaiter hoistways is now required.

5. All pipes and ducts conveying gases, vapors, or liquids have been excluded from hoistways, except pipes for heating the hoistway itself or for hoistway sprinklers where they conform to the requirements specified.

6. Requirements for car lighting devices have been revised to cover modern lighting fixtures including tube lighting, and the light bulbs and tubes are required to be guarded to prevent injury to passengers from breakage.

The code is so arranged that an elevator inspector may use it as a handbook. He may easily find a particular item which he has in mind without having to read through the whole code.

The last edition of the code contained 138 pages; the new edition has well over 300, and contains twelve parts: Hoistways, Hoistway Enclosures and Related Construction; Machinery and Equipment for Passenger and Freight Elevators; Hydraulic Elevators; Power and Hand Sidewalk Elevators; Private Residence Elevators and Inclined Lifts; Hand Elevators; Hand and Power Dumbwaiters; Escalators; Inspections and Tests of Elevators, Dumbwaiters, and Escalators; Maintenance of Elevators, Dumbwaiters and Escalators; Alteration, Repair, and Replacements; Design Data and Formulas.

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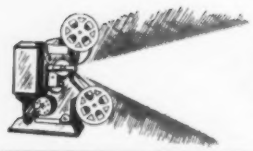

SAFETY FILMS

For further information on publications or films listed here, write Nancy Lou Blitzen, Film Consultant, Membership Service Bureau, National Safety Council

Machine Guarding

It's in the Cards (16mm sound motion) black & white. 18 minutes. Produced in 1954.

This film, sponsored by the Abitibi Power & Paper Company, Ltd., is a highly dramatic and shocking portrayal of what can and does happen when a worker fails to tag the main switch of a machine he is repairing.

Because this is a great problem to many supervisors and safety men, the film is extremely valuable in teaching workers the importance of always tagging and, if possible, locking out the main switch of machine being repaired. The accident that happens to one worker who, through carelessness and a disregard for the rules, neglects to do this will be a grim reminder to any worker who might feel that it's not worth the small amount of time and effort to take this precaution.

Prints are available in the United States from International Film Bureau, Inc., 57 E. Jackson Blvd., Chicago 4. They may be obtained for purchase and rental. Canadian users should contact Crawley Films, Ltd., 21 Dundas Square, Toronto, Ontario, for information on obtaining prints.

Construction

The Last Mile (16mm sound motion) black & white or color. 19 minutes. Produced in 1955.

The film, sponsored by Caterpillar Tractor Company, was prepared in cooperation with the National Safety Council's Construction Section. It illustrates how the highway becomes doubly dangerous when construction begins, not only for motorists who thread their way through the construction zone, but also for workers on the job if warning signs, flagmen, equipment, and other safety precautions are not carefully obeyed and used.

Using a technique similar to that in *The Gamblers*, a comparison is drawn between a condemned criminal walking his last mile to the death chamber through necessity and the "last mile" of sudden death to workers and motorists through accidents.

A point is made that all the signs, warning markers, flagmen, and precautions cannot completely remove the danger unless the individual looks after his own safety—the best guarantee that he will not walk "the last mile!"

Prints are available for purchase and loan from local Caterpillar Tractor Company dealers or from Caterpillar Tractor Company, Peoria 8, Ill.

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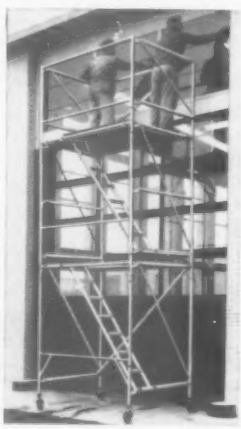

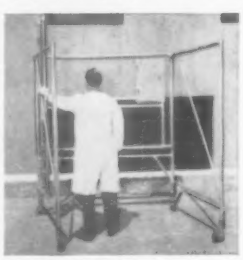

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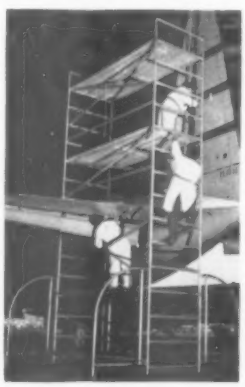
New 4′6″-Wide Ladder Scaffold

Large platform working areas are featured in this new 4′6″-wide ladder scaffold. It is especially designed for overhead repairs, painting, cleaning, relamping and other overhead work where great mobility and stability is desirable. Outriggers may be added to give additional stability when platform height exceeds 18′. Both scaffold and separate outriggers have swiveled, rubber-tired casters for easy movement to all parts of a plant. Lightweight aluminum components make the scaffold easy to erect and move. Base section is 6′7″ high including casters. Other heights possible by combining additional ladder units 5′4″ and 4′ high and by using 24″ safety-type leg adjustment. (On all three Scaffolds.) Diagonal braces give 6′, 8′ or 10′ spans. Write The Patent Scaffolding Co., Inc., 38-21 12th St., Dept. N.S.N., Long Island City 1, N. Y.



2′-Wide Ladder Scaffold

Has same features as 4′6″-wide scaffold, but is 2′ wide. Ideal for maintenance work in narrow hallways and aisles. Rolls right through standard 30″ doorway. Can be used with diagonal braces to give spans of 6′, 8′ or 10′ platform. Compact — parts lie flat and take up little room. Write The Patent Scaffolding Co., Inc., 38-21 12th Street, Dept. N.S.N., Long Island City 1, N. Y.

WHAT'S NEW IN NATIONAL SAFETY COUNCIL SERVICES

Operation Safety

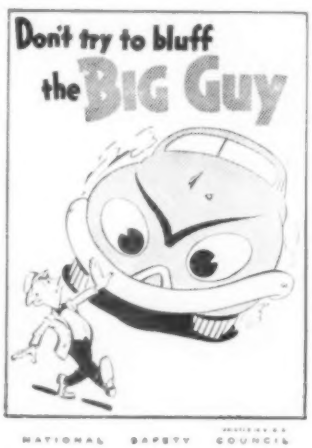
The Operation Safety program theme for February, "Know and Obey Traffic Laws," points up the fact that traffic violations play an important role in traffic accidents. Statistics show that a large percentage of those involved in traffic accidents were violating traffic laws relating to excessive speed, yielding right of way, drunken driving, failure to keep to the right of the center line, improper passing, disregard of traffic officer or traffic control device, and other regulations.

The February Operation Safety kit contains complete materials for conducting a community-wide campaign alerting motorist and pedestrian alike to the imperative need for knowledge of and obedience to traffic laws at all times.

The program materials included in this kit are a planning guide listing ideas and suggestions for use in setting up a well-integrated community drive against traffic violations; a fact sheet containing complete facts and statistics on traffic violations which may be used as staples for publicity and speech topics; a newspaper editorial and a group of newspaper releases pinpointing the various factors in traffic accidents caused by violations of traffic laws; four radio scripts, designed for easy conversion to the local picture, presenting in dramatic form the idea that traffic laws must be obeyed if one's own safety and that of others is to be preserved; program plans and ideas for the small community, and samples of posters and leaflets available from the National Safety Council.

The radio spot announcements consist of brief, catchy safety messages of varying time lengths slanted to various interest groups and can be used by local radio and television stations without charge.

The women's newsletter, included in the kit materials, contains ideas and suggestions on how women's groups in the community can cooperate in the "Know and Obey Traffic Laws" program during February.



A check list of other available materials on the subject of the monthly theme and a descriptive survey of the safety films available for public showing are also included.

For further information about the Operation Safety program, write to Bob Shinn, director, Operation Safety, National Safety Council, 425 North Michigan Ave., Chicago 11.

New Attitude Booklet

Heads You Win, the Council's new training booklet, shows workers that they must use their

heads to win in the fight against accidents.

The booklet is designed to shape employee attitudes by showing that wrong thinking is at the bottom of most accidents. It reminds workers that their attitude toward safety often makes the difference between health and misery.

Heads You Win shows workers what they lose when they forget to use safe equipment, fail to keep alert, engage in horseplay, neglect the little things that breed accidents, or are too timid to ask questions when they are in doubt about how to do a job.

Printed in full color, *Heads You Win* is packed with loads of humorous drawings throughout its 16 pages.

Look to this page each month for latest news about NSC services. Address requests for additional information, samples or prices to the Membership Department.

For a More Successful Poster Program

POSTER program aids miniatured on this and the following pages are NEW—shown here for the first time. Those illustrated in one color are actually printed in two or more colors.

For maximum variety, refer to the 1956 Directory of Occupational Safety Posters. There you'll find 756 top-notch selections on a great variety of subjects.

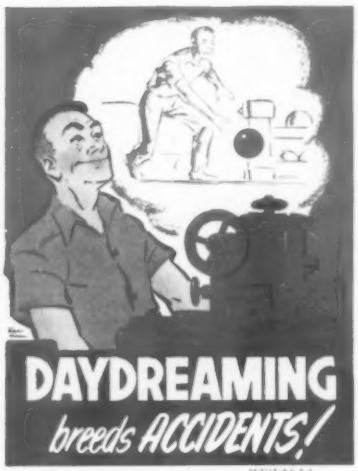
After January 1, 1956, please order from these pages or the new 1956 Directory.

JUMBO POSTER for MARCH 1956

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

SAFETY BANNER FOR MARCH, 1956

Here is the attention-getting, monthly cloth banner. Available in two types—indoor and outdoor—both are identical in size (10 feet long by 40 inches high), have the same general message and multi-color design. Indoor type is of sturdy drill with grommets for easy hanging, while the outdoor banner is of extra heavy drill, with wind vents, and has strong stitched-in rope for durability.



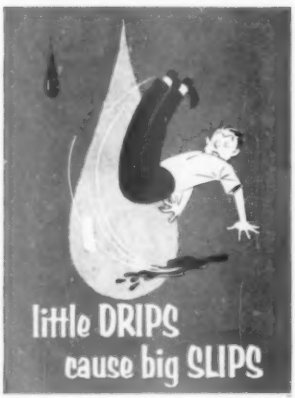
0642-A 8½x11½

This new four color poster is illustrative of the 72 four color posters shown in the 1956 Poster Directory.

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

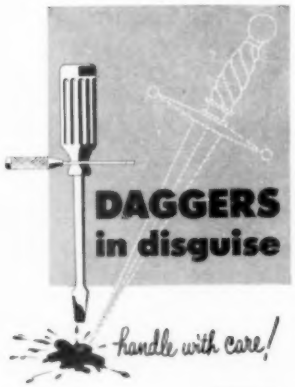
Posters below are printed in two or more colors

(Available only in sizes indicated)



NATIONAL SAFETY COUNCIL

0700-C **25x38**

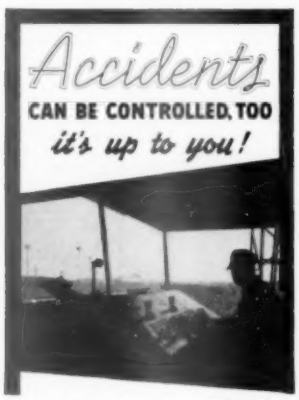


NATIONAL SAFETY COUNCIL

0605-A **8½x11½**

NATIONAL SAFETY COUNCIL

0669-B **17x23**



NATIONAL SAFETY COUNCIL

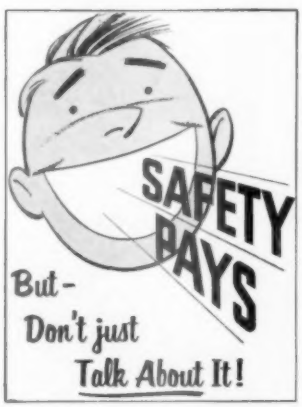
0660-B **17x23**

NATIONAL SAFETY COUNCIL

0434-A **8½x11½**

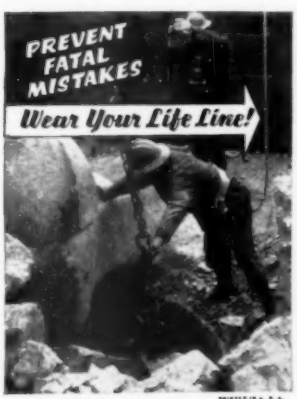
NATIONAL SAFETY COUNCIL

0663-A **8½x11½**



NATIONAL SAFETY COUNCIL

0620-B **17x23**



NATIONAL SAFETY COUNCIL

0637-A **8½x11½**

NATIONAL SAFETY COUNCIL

0427-A **8½x11½**

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Posters below are printed in two or more colors

(Available only in sizes indicated)

NATIONAL SAFETY COUNCIL

0594-A 8½x11½

NATIONAL SAFETY COUNCIL

0571-A 8½x11½

NATIONAL SAFETY COUNCIL

0644-B 17x23

Sammy Safety's
TOP TEN BASIC
SAFETY RULES
GREEN CROSS FOR SAFETY
1. Follow instructions; don't take chances; if you don't know, ask.
2. Correct or report unsafe conditions.
3. Help keep everything clean and orderly.
4. Use the right tools and equipment for the job; use them safely.
5. Report all injuries; get first aid promptly.
6. Use, adjust and repair equipment only when authorized.
7. Use prescribed protective equipment; wear safe clothing; keep them in good condition.
8. Don't horseplay; avoid distracting others.
9. When lifting, bend your knees; get help for heavy loads.
10. Comply with all safety rules and signs.

NATIONAL SAFETY COUNCIL

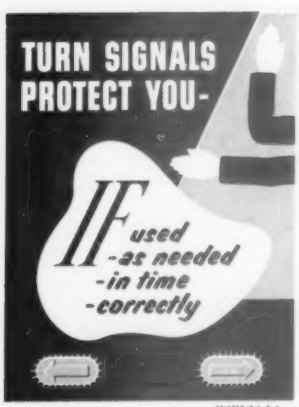
0667-A 8½x11½

NATIONAL SAFETY COUNCIL

T-0651-B 17x23

NATIONAL SAFETY COUNCIL

V-0634-A 8½x11½



NATIONAL SAFETY COUNCIL

V-0635-B 17x23

NATIONAL SAFETY COUNCIL

V-0641-A 8½x11½

NATIONAL SAFETY COUNCIL

V-0640-A 8½x11½

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

Wire from Washington

—From page 10

northeastern part of the United States to be increased in height to 1,250 feet above average terrain; instead, it placed the matter in another proceeding in which it had scheduled hearings and extensive discussion on the entire subject of TV.

Government. Senator Humphrey announced his intention to introduce legislation to create a consolidated Federal Safety and Fire Prevention Bureau, under the Civil Service Commission, "to coordinate all accident, injury, fire prevention and related loss-prevention procedures conducted by government departments and agencies." In particular, he proposed that the duties of the Federal Safety Council, now in the Department of Labor, and of the Federal Fire Council, now in the General Services Administration, be combined in one central bureau under one director appointed by the President.

In addition there would be established in the Civil Service Commission a Federal Safety and Fire Prevention Advisory Committee composed of representatives from federal agencies and from employees' unions. He said his proposal would be designed to reduce the "appalling number of injuries and the accompanying dollar losses" to the Federal Government due to fire and accidents. He pointed out that the Federal Government's accident frequency rate "has been reduced only half as fast in the past four years as the rate of those private enterprises reporting to the National Safety Council."

The American Federation of Labor's Government Employees Council, representing more than half a million Federal employees, and composed of Federal employee unions, drafted a legislative program which included the following item: "Establishment of a safety program in government to cut down accidents and injuries among Federal employees."

The Supreme Court of the United States handed down certain decisions which have safety significance. The Court ruled that the U. S. Government was liable, under the Federal Tort Claims Act, for damage caused by the Coast Guard's negligence in inspecting and maintaining a lighthouse, so that the light went out, as a result of which a tug went aground and damaged its cargo. (Indian Towing Co., v. U. S. A.).

The Court also held that the Government could be held liable for the death of an airlines passenger in a plane collision that resulted from the negligence of the government in operating a government control tower (U. S. v. Union Trust Co.). On the other hand, the Court of Appeals for the Ninth Circuit ruled that the U. S. Government was not liable for an action based on its alleged negligence to extinguish a forest fire on public lands, as a result of which the fire spread to and destroyed privately-owned timber (Rayonier Incorporated v. U. S.).

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SPA-FLA the Portable Safety Welding Shield for on the job protection.

Here is a lightweight portable welding shield that is flexible for shaping around even the most out-of-the-way welding areas. Easily rolled for carrying. With its heavy reinforced corner rings, the Spa-Fla shield is easy handling on overhead jobs, can be stored easily, and can be lashed down as a windbreak.

NEW! SPA-FLA with **RAY-TEX**, the all-purpose Aluminum Coated Fabric, washable and resistant to most acids, alkalis and greases.

RAY - FOIL

THE PROTECTIVE HEAT CLOTH

RAY-FOIL, the amazing protective cloth that permits personnel to work comfortably only inches away from high industrial heat temperatures. Made up as shields, curtains and panels. Easily installed for all plant maintenance work. NOW! RAY-FOIL FIRE SHIELD, "Portable Fire-Fighting Protection". Protection from high radiant heat - Fight fires at close range.

Send for Literature, Prices and Samples

SAFETY WELDING SHIELD

SPA-FLA SHIELD AS PART OF YOUR WELDING CART

The "last word" in complete welding safety and portability is SPA-FLA as part of your on-the-job maintenance welding cart. SPA-FLA is easily carried from job to job and should be made the necessary safety part of every maintenance welders equipment. SPA-FLA shield available in various stock sizes, 18" x 36" through 72" x 108"! Special sizes are also available on request.

FROMMELT Industries

BOX 165-N, DUBUQUE, IOWA

Diary

—*From page 27*

think I agree with you. Like Norden, I promised no quick results, expected none. I wouldn't be apologizing, even if that decline had not happened. I'm trying to save lives, not count dollars. The steps I've taken are in line with sound industrial safety practice—the same body of practice which has, over two generations, cut the industrial accident rate to a small fraction of what it was.

"If you want me to justify each expenditure in terms of an estimated reduction in accident rates and accident costs, I can't do it. I can't even give what Norden calls an informed guess. I say that the program will help. I think it has already helped. I say you will be money ahead for an aggressive safety program of the type we are just getting under way. But I won't try to say that the eye protection campaign will save you so many accidents and so many dollars. I don't know, and I won't stick my neck out in a wild guess. That goes for the use of posters, and foreman training, and the new conveyors, any single item in the safety program."

I stopped, and watched Johnson scribble a note, hand it to his secretary. Then he said, "That's your answer, then, to my first two comments on your report. Now on budget, I made the comment . . ." He paused and the secretary slid a sheet in front of him . . . "'This sounds like guessing.' What have you to say to that?"

I thought fast. "No comment, right now," I said. "You may be right there. I'll see what I can do. There remain intangibles and unknowns, but I think I can be more specific."

Johnson growled, "I hope so."

The meeting ended soon after that. But not the struggle.

In the days that followed, I saw a lot of my fellow department heads.

The yes-men of the meeting came around to see me, one by one. Each had his own tactic, but each tried to put over pretty much the same general ideas. They were:

1. Johnson's in a spot. We've got to help him make a good case to the board.

2. You can't expect money without results.

3. If results are hard to estimate, guess and guess optimistically.

4. Get Johnson off the hook, and he won't hold us to those estimates.

Norden came around, too. "Look," he said, "you and I are being asked to do the impossible, the dishonest. Our departments are slow pay, sure. But they are must departments. We've got to take a stand for straight thinking and straight talk, and if they don't like it, we'd better find it out soon and get with a good outfit."

None of the shop department men came by, but I saw them huddling frequently over lunch. They looked anxious, uncertain. They were certainly irritable with me on a couple of occasions when I had to call them on shortcomings.

In trying to straighten out a minor disagreement with the

"Look! It soaks up grease just like a sponge."

LAN-O-KLEEN removes 95% of all dirt and grime encountered in industry.

Easily – and safely!

LAN-O-KLEEN helps to protect the skin as it cleans. WEST – *in pioneering the development of "double action" industrial cleaners* – was the first to impregnate *beneficial amounts* of free lanolin into a corn meal type hand cleaner.

LAN-O-KLEEN is economical to use. It bulks greater than most other hand cleaners – *therefore goes farther per pound.* Too, the sturdy LAN-O-KLEEN dispenser rations just the right amount to do a quick, thorough cleansing job.

LAN-O-KLEEN is one of a group of WEST products formulated for the prevention and control of industrial dermatitis. Workers' hands are their most valuable tools. By helping to prevent dermatitis, you can help keep costs down – *by keeping workers on the job at maximum efficiency.*

A specially trained WEST representative will gladly tell you more about LAN-O-KLEEN and the other products used in the WEST Dermatitis Control Plan. Just write or call your local WEST office.

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foundry boss, I went to see Danert, the v.p. for manufacturing. We settled the issue quickly, and I got up to go. He waved me back to my chair.

"Have you revised your report?" he asked.

"I revised and amplified the budget material. I'll add the December accident and program data when it's in next week," I replied.

"What about the estimates of return on expenditure?"

I shook my head. "I haven't fully made up my mind," I said. "It's not easy to make them realistic."

Danert never shed the blank, emotionless mask. But he said, very slowly, very quietly, "I don't think you should give too much on that issue. You can justify budget on general grounds, much as you did in the meeting. Johnson thinks he needs a point-by-point defense of a lowered profit rate, but not all operations lend themselves to that. Yours don't. I don't think that mine do. In the end, we must be judged by results, certainly. But now we must demand confidence in our judgment. If that is lacking . . ." He shrugged.

There ran through my mind a bleak picture of the significance of that shrug — of going scouting for a job after being fired, after failing. I must not have as good a poker face as Danert, for he said, still unemotionally, "I wouldn't worry. I like your work. If we should have to part with Johnson, Duray wants me at a new aluminum plant. You wouldn't be worse off there."

* * *

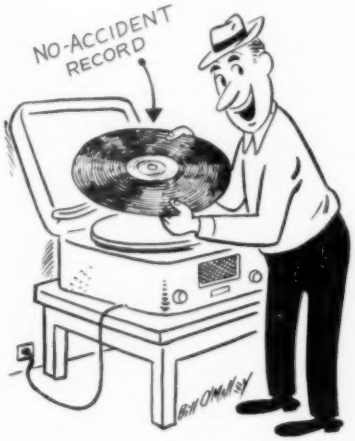
Last night at the New Year's party, I must have shown my anxiety, for Sue asked if anything was wrong.

I said I didn't want to talk about it—which was probably the wrong thing to say, for she went into a sulk.

On the way home, I did tell her the story, told her my doubts and uncertainties.

She snuggled close to me, and smiled. "My poor, little, frightened man. Why can't you just be content to be honest without struggling, dear. You know you'd make a rotten yes-man."

And on that note the year ended.



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Miller ANGULAR CONTACT SWIVELS Products

Safety Demands QUALITY

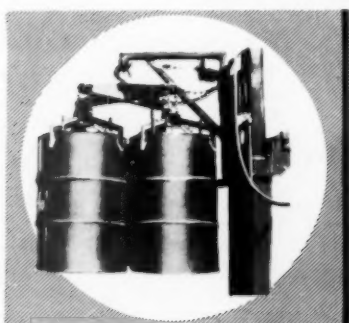
Precision built means better quality . . . MILLER precision ground matched ball bearing sets give you maximum safety, eliminates line torque, affords perfect load control.

SWIVEL

SAFETY LATCH

BLOCK

HEADACHE BALL



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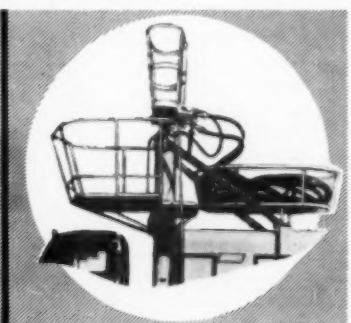

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Custom built to specification — operates from all sides up to 60 feet standard, higher on request.

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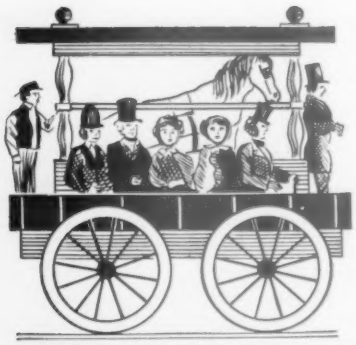

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If your plant's safety depends on an old-style dial-type watchclock, you're asking for trouble. Modernize at once with a DETEX tape-recording GUARDSMAN watchclock.

This is what the GUARDSMAN gives you that you are not now getting:

1. Continuous Watchman supervision on week days, weekends, holidays and extended plant closings.
2. Savings in overtime—a supervisor is not required to return to the plant on weekends to change the dial. (Permitting your Watchman to change the dial is against insurance regulations.)
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☐ Please send me complete information about the GUARDSMAN tape-recording watchclock.

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Name.....

Company.....

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.....Title.....

Cutting Oils

—*From page 86*

done, the bacterial population is markedly reduced but reduction is only temporary. A temporary reduction in bacterial population may also be accomplished by adding Formalin to the coolant in a machine.

A sufficient volume is added to make the coolant 0.1% by volume Formalin. This latter practice will, temporarily, practically sterilize a coolant and is practiced by some plants having odor problems. Since some people are hypersensitive to formaldehyde, this method of coolant sanitizing should be carefully observed.

For years "soluble oil" coolants have been used on cutting, grinding, milling and drilling operations without any particular respiratory trouble associated with the inhalation of coolant mist given off to the air due to rapid motion of either the machined part or the tool. Throughout this time, it has been the customary practice to employ the coolant as a flood coolant. A more recent method of application calls for atomizing the coolant, directing the coolant mist at the tool point.

There has been some concern over possible ill effects involving the respiratory system of employees working with the atomized coolant. We have made a limited number of studies of this process determining the concentration of oil mist in air at the breathing zone of employees.

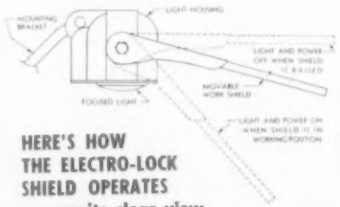
In general, these studies have shown that, with a properly adjusted atomizer, the concentration of oil mist of droplet size that could reach the lung in no greater on the average than the concentration of coolant mist in the air on grinding operations or high speed turning on lathes employing flood coolants. Exposure to mist of droplet size of physiological interest (below 10 microns in diameter) appears comparable.

Therefore, since the composition of the coolants are generally the same, it seems that one may also assume that the same good experience that has accompanied the use of flood coolants will also be the experience with atomized coolants.

JUNKIN
ELECTRO-LOCK SHIELD

The Shield Which Commands Operator Safety

The position of the Junkin Electro-Lock Shield is controlled by mercury switches. Interlocking power and light circuits will not permit the machine to operate unless the shatter-proof shield is in a completely protective position. Affords perfect visibility, and protects the operator from flying particles. Write for free bulletin No. 103.



HERE'S HOW THE ELECTRO-LOCK SHIELD OPERATES —permits clear view of work, still providing maximum protection

JUNKIN
ENGINEERED SAFETY

SAFETY APPLIANCE CO.
101 S. FLOYD ST.
LOUISVILLE 2, KENTUCKY

THOMAS J. WATSON, JR. *Portrait by Fabian Bachrach*

"IBM was one of the first companies to . . ."

"I have always been proud of the fact that IBM was one of the first companies to put into effect the Payroll Savings Plan for the purchase of United States Savings Bonds, and I am delighted to see this patriotic endeavor continuing year by year and increasing throughout our organization. Today thousands of IBM employees, through their participation in the Plan, are helping their country and providing for the future of their families and themselves." **THOMAS J. WATSON, JR.,** ***President International Business Machines Corporation***

If employee participation in *your* Payroll Savings Plan is less than 50% . . . or, if *your* employees do not now have the opportunity to build for their future through the systematic purchase of U.S. Savings Bonds . . . a letter to: Savings Bonds Division, U.S. Treasury Department, Washington, D. C., will bring prompt assistance from your State Director. He will be glad to help you put on a person-to-person canvass that will put an application blank in the hands of every employee. This is all you have to do. Your men and women will do the rest, because they will welcome the opportunity to build for personal and national security.

The United States Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

NATIONAL SAFETY COUNCIL

Measuring Work Injuries

—*From page 29*

should be included in the Z16 frequency and severity rates.

It soon became evident that some persons were taking this "Committee of Judges" quite literally. In one case, an employer stated: "The employee claims that as he passed through the bulkhead of the ship he struck his shoulder on the edge of the steel plate and received injuries which resulted in lost time." There were no witnesses and the employer claimed the man was faking. He asked the Committee of Judges to decide, "Did this employee, or did he not, strike his shoulder on the steel plate?"

As a result of such cases the committee adopted a policy that they would be very happy to interpret obscure meanings with regard to American Standard Z.16.1 but that they did not believe they were in a position to judge whether an employee was telling the truth.

During the nine years this standard was in existence 255 cases were judged and the decisions were published for distribution. To start, groups of 20 to 30 of these decisions appeared in the *Magazine of Standards*, published by the American Standards Association. Then the cases were put on multilith plates and copies made available to interested persons.

We now have a list of 150 individuals who desire one or two copies. A few companies have standing orders of from 25 to several hundred copies which we mail to them at cost.

In the 1954 revision the Committee of Judges was renamed "Committee on Interpretations." Because of other cases received concerning the old standard, it was decided to start cases based on the new standard with the serial number 400. Already the committee has received 55 cases and handed down decisions on 40 of them. Some of these are definitely borderline.

Typical Cases

An employee reported for work half an hour early and before starting work stopped to visit a friend in another department, approximately 150 feet from his work area. In going to his friend's department he fell into an open pit at the tail pulley of a belt conveyor. It was admitted that somebody had failed to replace the guard over the pit, but the employer believed the injured man had taken himself outside his employment by going to see his friend.

The committee interpreted the standard to include this case as "arising out of and in the course of employment."

Back injuries. The 1954 revision made special provision for back injuries and several borderline cases have been submitted for interpretation as to whether they met the special provisions of paragraph 5.2.

An employee was piling 100-pound bags. Two men were engaged in the operation so the load for each man should have been about 50 pounds. During

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normal operations one day while stooping to pick up one end of a bag he felt a "catch" in his back. There was a pain lasting only a few seconds. He continued working without making any comment.

Two days later, his back was very sore. He reported to the company doctor who diagnosed it as a sprained back and gave him heat treatments. He lost about two weeks.

In accordance with provisions of paragraph 5.2, the committee decided that this injury should not be included in the industrial injury rates on the basis that the employee had not slipped, tripped, fallen or had any other incident or accident as called for in the standard.

Hernias. Special requirements concerning hernias in paragraph 5.1 have been changed slightly from the provisions in 1945 but apparently there will always be borderline cases.

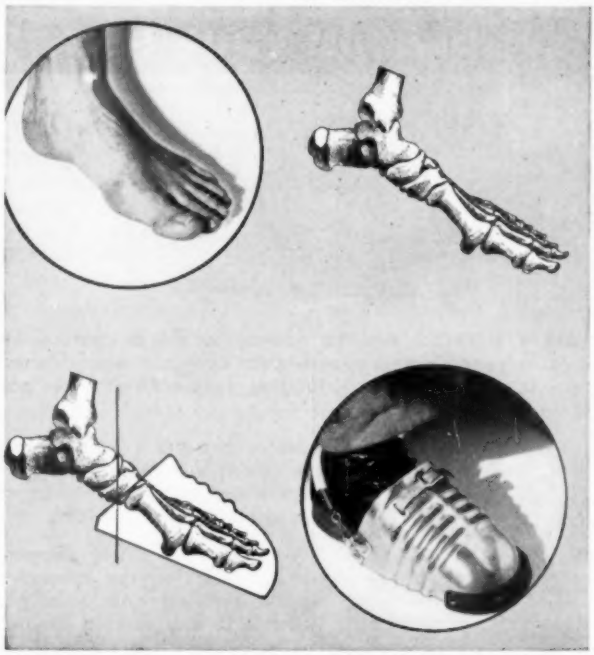
Hospitalization for observation. Provisions have been relaxed slightly in paragraph 5.13.

The committee received a case where an employee jumped or fell and landed on his heels. There was a crushing injury of one heel. The doctor took the employee to the hospital and by the use of ice packs for the first 24 hours was able to reduce the swelling so that with a walking cast the employee was able to return to work in 48 hours.

The committee called attention to statements in paragraph 5.13 that this is only an observation period for injuries which are known to have a delayed effect, and where the physician determines that the injury was really slight and that the injured person could have returned to work without any permanent impairment or temporary total disability.

The committee decided that the employee would have had to be in the hospital 24 hours for the icepack treatment and the case should be included as a temporary total disability.

Arrangements are being made to continue publishing decisions of the Committee on Interpretations in the *Magazine of Standards* and making reprints available. Some members of the



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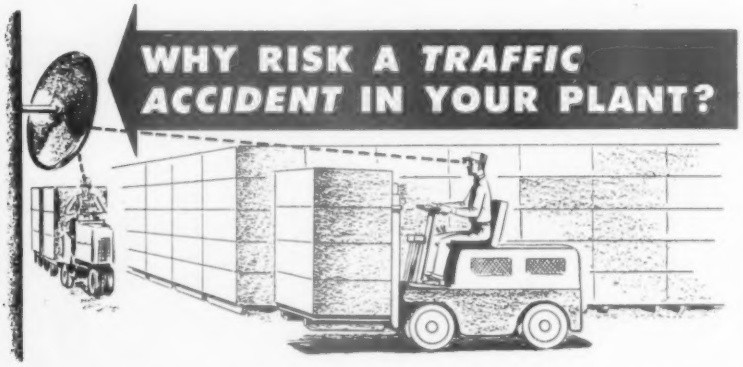

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committee believe that an index of cases would be valuable. H. Gene Miller, director of the National Safety Council's Statistics Division, secretary of the Z16 Committee and a member of the Committee on Interpretations, has already started work on such an index.

We hope that those who have cases to submit realize that members of the Committee on Interpretations are voluntary workers. Much of the work is done through correspondence, which takes a certain amount of time.

Naturally, there are differences of opinion among members of the committee and real borderline cases are held for discussion at meetings of the committee. In such cases it may take even longer to reach a decision.

In the 1945 revision it was requested that three copies of each case be sent in. Since there are seven members of the committee, this did not help too much. It is requested that nine copies be sent to speed up the work and avoid a tremendous amount of duplication at ASA offices.

They Still Do It

THE STORY of a factory worker who lost a finger in a machine was told in a British medical journal, according to a recent dispatch by Reuters. The foreman asked how the accident happened, so the worker demonstrated—and cut off another finger.

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JANUARY 3-31

Leading industrial doctors advise immediate washing with plenty of running water as the best first aid treatment for any chemical in the eyes. Records prove that washing with water for ten minutes or more, close to the accident, is necessary to reduce or eliminate eye damage.

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are widely used for the safe handling of glass bottles containing harmful chemicals; also the storage and recovery of expensive serums, biologicals, and other costly products.

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Safety-Minded Genius

—From page 20

instruments. Later, they developed an improved model, the aircraft gyro-pilot, with a combination of gyroscopes directing servomechanisms which operated the controls holding a plane on any desired flight path. This was the fore-runner of automatic pilots which now are standard equipment on large aircraft.

In 1917 Dr. Sperry and Lawrence developed the gyro turn indicator, then acclaimed as one of the greatest flight safety instruments in the history of aviation. This instrument later became the turn and bank indicator. Still later the directional gyro and gyro horizon were added by Dr. Sperry's other son, Elmer A. Sperry, Jr. These safety devices generally are used today, but were introduced as the nucleus of a combination of flight instruments dramatically used in 1929 by James H. Doolittle for the first blind takeoffs, flights and landings.

Safety On The Railroads

Dr. Sperry appeared before an American Railroads Association committee in 1926 with an offer to establish a laboratory for making and testing an instrument which could sense even invisible flaws in railroad track. The safety objective was to facilitate the replacement of rails before rapid growth of defects caused derailments, wrecks, or service failures. The offer was accepted.

The association supplied rails from all parts of the country for testing. Dr. Sperry developed an instrument which indicated the location even of invisible fissures. Inspection in the presence of a committee, by breaking the rails, proved that he had made a perfect score. He was commissioned by the association in 1927 to mount his instrument on a car and to test rails in track under operating conditions.

The first test, conducted near Beacon, N. Y., was a failure. Dr. Sperry surmised that the rail film of oxide and dirt prevented proper contacts. He changed the instrument from a magnetic to an

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induction device. Then he added a synchronized endless tape to record rail conditions and a paint spray to mark defective rails.

Success attended these new developments. This Sperry Detector Car was characterized in a report to the Interstate Commerce Commission Bureau of Safety in 1927 as the greatest advance in the safety of railroading in 16 years.

A fleet of 20 Sperry Detector Cars now is in operation, testing annually more than 160,000 miles of main line in the United States and Canada. Through the years these cars have brought about the removal of more than 1,000,000 defective rails from 2,000,000 miles of track.

Dr. Sperry's contributions to transportation safety on land, at sea and in the air are memorialized in the Elmer A. Sperry Award. It will be conferred for outstanding engineering contributions by an individual or group to safety in the three fields of transportation. Award winners are selected by a committee jointly representing the American Society of Mechanical Engineers, American Institute of Electrical Engineers, Society of Automotive Engineers and the Society of Naval Architects and Marine Engineers. The engineering contributions must be proved in actual service to be of constructive, practical and enduring nature.

The award, comprising medal, certificate and honorarium, was presented initially in 1955 to William Francis Gibbs specifically for designing and supervising the construction of the *SS United States*.

"Mind a suggestion?"

Junior Achievement

—From page 33

and a re-inspection was scheduled for six months later.

The second inspection found conditions greatly improved. This was enough to convince JA headquarters of the need for an organized, full-time safety program of its own. Last spring the Chicagoland Area JA Safety Committee was organized. The members are Ralph Coe, safety director, Goodman Manufacturing Company; Stanley Hazel, safety director, Pullman Standard Car Manufacturing Company and Jack Hellander, research engineer, and W. McCready, both of Illinois Bell Telephone Company.

Now finishing up the engineering phase and concentrating on the education and enforcement phases of the safety program, JA's safety committee is working with the ASSE committee to keep up a constant flow of safety material to all business centers. Posters, instruction sheets for advisers, check charts for every machine, and personal hygiene check charts have been developed and distributed.

The latest effort is a safety check sheet given to every achiever in Chicagoland. It covers 33 points dealing with the use of power equipment and includes several reminders about safety goggles and good housekeeping.

JA's safety committee has inspected each center at least once during the current season and findings were good—97 per cent of last season's recommendations were complied with. Seven machines have been scrapped because of unsafe conditions caused by worn parts, broken guards, and other defects. These were replaced with brand-new machines.

It is the boast of the Chicago area JA officials that none of the other 60 areas in the nation has so detailed a safety program.

And none of the other centers in Chicagoland has the enthusiasm and participation in safety of the South District Center. Center Manager Koenicke over the past two years has devised what is now the standard safety organization in all area centers. Each

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night one adult safety director is on hand. He is assisted by the shop supervisor, an achiever appointed for the season who is present every night and who holds the additional title of shop safety director. Each of the 10 JA companies which meet nightly has a member appointed as safety director for his corporation. The final member of the center's safety set-up is the Junior Board safety director.

The Junior Board is composed of one member from each of the 40 JA companies and shares in the over-all management of the center. Every monthly board meeting includes a talk on safety, either by the Junior Board safety director or by the center manager. Each board member goes back to a business meeting of his company and reports in a 10-minute talk, carrying the safety message to every achiever.

The 40 company safety directors are trained by fire prevention demonstrations, industrial safety films, and lectures on safety. They have appointed a committee to devise a safety manual specifically for their center. It will include illustrations and rules for the safe operation of each machine and will stress three points:

1. Stop accidents and prevent needless injury.
2. The safe way is the most efficient and productive way.
3. Personal pride and competition with others.

Although the area safety committee is working on a more comprehensive safety handbook to cover all JA operations, no other center has ever attempted to write its own.

This is only one of an impressive list of "firsts" piled up by the South District Center. "We're still pioneering," says Ray Koenicke proudly.

This was the first center to install effective tool control. Previously, teen-agers entered the tool rooms at will, often grabbed up the wrong tool for the job, returned it only if they thought about it.

The South District Center ended these confusing and often dangerous practices by appointing an achiever as shop supervisor. This season he's Tom Tiedemann who has a teen-age assistant each night. These two operate from the "Supervisor's Office," where every tool is checked out and signed for. Tools are inspected nightly and repaired or replaced whenever necessary.

In addition, Tom and his helper check every operator on and off the power tools, inspect every machine for working order, guards, and housekeeping. They also take care of the infrequent accident reports, have never had to report anything more serious than a cut finger. A phone number in the office will connect them with a nearby medical center which is open 24 hours a day, but has never been used by the center.

The only serious accident in Chicago area JA history occurred last fall in another center when an achiever lost a fingertip in a power saw. All area centers keep detailed accident reports which

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include a space labelled "follow-up," where the center manager explains what corrective actions were taken to prevent a recurrence. One accident involving friction burns on an achiever's fingers resulted in the development of a holding jig for small pieces on a belt sander.

Accident reports from all centers go to area headquarters for review. Shortage of personnel has prevented them from compiling frequency rates, but such compilations are considered as a part of the long-range safety program, as is an incentive program to help prevent accidents.

Like all center managers, Ray Koenicke strictly enforces the rule that no achiever may operate a machine unless an adult adviser is present. Certain knobs and adjustments painted red are never touched by operators. An example is the knob which aligns the belt on sanding machines; only the shop supervisor can adjust it. Improperly aligned belts can mean injured fingers and broken guards.

Other preventive maintenance and safety measures include a weekly check and oiling of all machines by the shop supervisor.

Front switches have been installed on all machines to eliminate slow and unsafe reaching around to the side or back to cut off power in an emergency. Jig saws are equipped with lights which go on automatically with the saw blade.

More of a problem were four belt sanders which create a dust hazard, especially when used with some soft woods. Commercial exhaust systems cost $65 per machine—more than the budget will allow. Manager Koenicke experimented with his wife's vacuum cleaner and found it trapped about 70 per cent of the dust. When his wife demanded the return of the cleaner, he tried inexpensive, second-hand upright vacuum sweepers. These worked fine for the dust but caused tripping hazards and other problems.

The dust problem is now partially solved by foot-long canvas bags attached to the exhaust point which trap about 25 per cent of the dust.

Fire prevention measures include approved metal cans for storage of varnish, lacquer, paint, and solvents; five fire extinguishers scattered throughout the center; a dirt-and-sawdust-filled barrel outdoors at the rear of the building for the disposal of used flammables, and a rigidly-enforced no-smoking rule at all times in the machine shop and in other workrooms during operations involving fire hazards. Rags used with flammables are never stored but are disposed of nightly.

Fire prevention training thus far has been limited to members of the safety organization, but fire drills for all achievers are planned for this season.

Horseplay of any kind is not tolerated. Running, noisy conversations and other distractions are likewise forbidden. The center manager, adult advisers, and the shop supervisor combine their efforts to enforce these rules.

Housekeeping is excellent and

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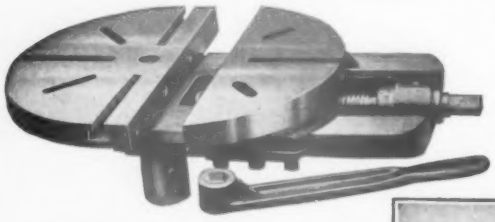

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is enforced by nightly inspections of all work areas and by an incentive plan through which neatness, along with several other qualifications such as promptness and production, can win a "Company-of-the-Month" award. Two girl achievers inspect and keep records on these qualifications and the shop supervisor inspects work areas for cleanliness at the end of each evening's work.

What are the benefits of a safety program in an industrial operation that had no serious accidents even without a program? Beyond the obvious answer that it can continue to make doubly-sure the always-possible serious injury does not happen, JA's safety program produces safer citizens for a safer community. An achiever who is constantly exposed to accident prevention in his business center will take home with him a sound safety attitude.

It will carry over into all his other activities — driving, home and hobby projects—and into his future job, paying off in an important way for the industries which have sponsored his JA company.

With the big rush to meet the Christmas market behind them for another year, Chicagoland achievers now face another deadline—the JA Trade fair, held each February in conjunction with National Junior Achievement Week. Last year 23,000 persons paid $1.25 each to attend, to look, and to buy.

This year JA Week (January 29-February 5) will be kicked off with a half-hour television program on Chicago's new educational station WTTW — another contribution from ASSE which is scheduling the show on one of its regular programs.

Between now and February 4, when the two-day Trade Fair opens, the production pressure is really on. Achievers are turning out everything from shadow boxes to salad dressing and, thanks to an effective accident prevention program—they're doing it safely.

Correcting faults is like tying a necktie; we can do it easier on ourselves than on anybody else.

Hauls on Track or Pavement

THREE HUNDRED Chicago and Midwestern industrialists, railroad executives, editors, publishers and reporters gathered at the Illinois Central Railroad Station one afternoon recently to witness the first public demonstration of the versatile, new heavy-duty Trackmobile that hauls, switches and spots railroad cars. Designed for use on factory sidings, mines, quarries, grain storage depots, and other industrial trackage, the Trackmobile demonstrated its ability by pulling heavily loaded railroad cars, switching and spotting cars, and making up strings of cars. The Trackmobile is manufactured by the Whiting Corporation, Harvey, Ill.

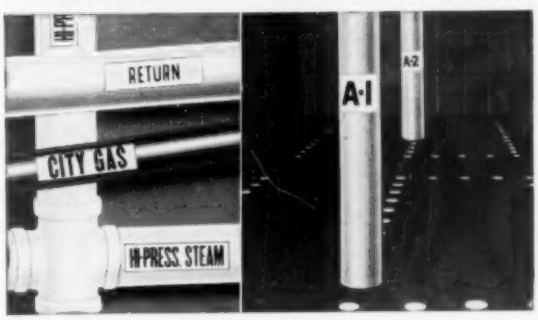
The Trackmobile operates on both road and track. It travels on roadways, or across track, on four pneumatic wheels. When the Trackmobile is astride a track, the automotive-type road wheels are retracted and the machine rests on its steel rail wheels, ready for track operation. This conversion from road to rail wheels takes only 90 seconds. The Trackmobile is then ready to travel on the tracks, couple to freight cars, and push or pull them. The machine can be driven over unimproved tracks—special crossing points are not required.

The Trackmobile develops a draw-bar pull much greater than its own weight. After the machine has been coupled to a car, a constant-pressure type hydraulic jack on the Trackmobile lifts the freight car slightly and thus transfers part of the car's weight onto the Trackmobile. This enables the machine to develop as much as 12,800 pounds of draw-bar pull, which is sufficient to pull a number of heavily-loaded cars.

Whiting's board chairman, Stevens H. Hammond, pointed out that the operator does not have to get out of his cab to couple or uncouple. All controls, including those for positioning, raising and lowering the automotive-type wheels, and coupling and uncoupling, are located in the cab. The cab is elevated and enclosed in glass to provide 360° visibility and all-weather operation.

"We've devoted a lot of attention to safety of operation too," continued Mr. Hammond. "The rail wheels and the rear road wheels have 12 inch diameter mechanical and hydraulic brakes, internally expanding shoe type. The Trackmobile has electric sanders built into the frame, for operation on wet or icy track. It has two head lights and a tail stop light for road use."

Self-Sticking Markers Cut Maintenance Time and Costs



Self-Sticking Markers which cut maintenance time and costs are available from the W. H. Brady Co., Milwaukee. One of their widely-used products, ALL-TEMPERATURE PIPE MARKERS, stick permanently to pipes as hot as 300°F. Millions of them in use in plants of all types today. They conform to ASA standards and give you a fool-proof, cost-cutting method of pipe identification. Write for Bulletin No. 135-B.

Brady Self-Sticking DOTTED LINE AISLE MARKERS offer a fast, low-cost way to mark aisles. They are so tough they outwear painted lines 5 to 1. Miles and miles of aisles are marked with these markers in plants everywhere. Write for Bulletin No. 141.

A quick, economical method for marking areas, bays, posts, bins, pallets, etc., is found in Brady Self-Sticking All-Purpose NUMBERS and LETTERS. These individual NUMBERS and LETTERS let you make up any combination of markings right on the spot. Stocked in six sizes, these handy Markers fit many plantwide Marking needs perfectly. Write for Bulletin No. 165.

Manufacturer: W. H. Brady Co., 780 W. Glendale, Milwaukee 12, Wis.

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ABSOLUTE SAFETY—against sparks, flash, dangerous rays. Federal Specification Plates.

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Calendar Contest Winners For November

"I'll clean up that rubbish," said Ray,
"But not on a good golfing day."
But he found out too late
That a fire just won't wait

First prize of $100 in the National Safety Council's Safety Calendar Contest goes this month to Mrs. Arnold Adams, of Milton, Mass. The theme in this contest was Fire Prevention. Mrs. Adams' line was adjudged the best of all those submitted. It was:

Make the rounds on home grounds 'fore you play.

Second prize of $50 went to Charles Firing of El Paso, Tex., for this line:

While a put-offer putts time away!

Third prize of $25 was awarded to Mrs. Earl Boyle, of Summit Station, Ohio, for the following line:

It's kid stuff to slight safety for play.

Thirty $5 awards were issued to:

Richard Kay, Alpha Portland Cement Co., Syracuse, N. Y.

Mrs. Helen C. Church, Southern California Edison Co., West Covina, Calif.

Warrick E. Lee, manager, Bell Telephone Co., Carbondale, Pa.

Dorris E. Maxwell, Thiokol Chemical Corp., Jefferson, Tex.

Mrs. Edwin Holsworth, Republic Steel of Massillon, Massillon, Ohio.

John A. Grabovich, electrician, Barney Roth Co., Inc., Philadelphia.

Ruth F. Ridgway, Hughes Aircraft Co., Culver City, Calif.

Lenore Pyle, Colorado Springs, Colo.

H. T. Orsborn, Elgin, Ill.

Mrs. G. F. Vaught, Hughes Tool Co., Houston, Tex.

Mrs. George A. Gannon, Rock Island-Frisco Term. Ry., St. Louis, Mo.

Robert F. Schaefer, Hercules Powder Co., Parlin, N. J.

Mrs. H. W. Guenther, Tahlequah, Okla.

Jesse H. Long, accounting clerk, TVA Construction Dept., Chattanooga, Tenn.

Sgt. John H. Olson, Everett Police Dept., Everett, Wash.

Miss Susie Mae Smith, Tuscaloosa, Ala.

Eleanor K. Walsh, Pratt-Whitney Aircraft, Hartford, Conn.

Mrs. William B. Rehse, Armco Steel Corp., Middletown, Ohio.

Kenneth Griesman, gasmeter repairman, Wisconsin Power & Light Co., Beloit, Wis.

Miss Dorothy G. Oliver, stenographer, Swift & Co., North Portland, Ore.

F. A. Landers, fleet supervisor, National Lead Co., Houston, Tex.

E. J. Dean, plant manager, Great Lakes Carbon, St. Louis, Mo.

George E. Dimmick, metal tester, Revere Copper-Brass, Inc., Rome, N. Y.

Mrs. A. R. Poole, Corvallis, Ore.

Mrs. H. M. Jarvi, United States Steel Corp., Hibbing, Minn.

Mrs. Shirley L. Garvin, Kraft Foods Co., Pocatello, Ida.

Lt. Col. Edmund J. Evans, U. S. Air Force, Ruislip, Middlesex, England.

J. L. Woosley, Carlisle, Ark.

Mrs. Helen Keeler, Wabash Railroad Co., Decatur, Ill.

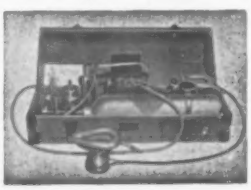
James Marsh, electrician, Quaker Oats, Cedar Rapids, Iowa.

When the LIFE of Your Employee is at Stake . . .

MINUTES COUNT

Emergencies where respiration is involved need INSTANT action

Then—you NEED the



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RESUSCITATOR • INHALATOR
ASPIRATOR

Write today for demonstration without obligation or for pamphlet N-201.

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RED BANK NEW JERSEY

Post-Mortems

—*From page 12*

turn of the wrench is completed.

Several questions appear to be unanswered here. Was this a normal operation? If so, possibly some arrangements for an easier method of handling the job could be made, such as putting a handle on the pipe to move it or installing a different kind of drainoff so that the pipe would not have to be adjusted.

Another question occurs. Why was the set screw protruding? Good engineering practice calls for an Allen set screw with a recessed head to eliminate sharp protruding edges.

Caught in Conveyor Belt

The employee feeds paper stock to a conveyor which runs from the ground floor of the receiving building to the second floor of an adjacent building.

The conveyor is usually stopped 30 to 45 minutes before the plant closes for the day. The employee removes the cover of the conveyor pit and goes below ground level to clean out the accumulation of loose paper around the inside of the conveyor belt.

On the wall beside the feeding end of the conveyor is a push-button which rings a bell at the operating end of the conveyor. Whenever it is necessary to stop the belt, the bell is rung. The belt is not started again until the bell rings a second time.

While the employee was in the pit his helper, who had been in another building talking with a supervisor, returned and entered the pit to help the operator clean up. Suddenly the conveyor started to move. The helper shouted, climbed out of the pit, and rang the bell, signalling the operator at the other end to stop the conveyor. The belt was stopped immediately.

The employee in the pit was forced around the pulley at the foot of the belt. He suffered crushing injuries to the head, chest, abdomen, and left thigh. Before he died it was determined that he had not rung the bell to stop the conveyor, but he was unable to give any reason why not.

The company has now installed a switch box at the feeding end of the conveyor where the current can be shut off before beginning any work on the conveyor. An interlock switch has been installed on the pit covers as an additional precaution.

Evidently, this job was not properly engineered or paper would not have been allowed to accumulate in the pit and the employee would not have had to enter the pit. A hopper designed to carry the material onto the belt would have solved the problem.

Of course, the cover interlocks should have been installed in the first place and to rely on someone in a distant building not to start a machine should never happen. This man might leave his work station and someone else come along and start the machine, not knowing that it was supposed to be shut down.

STOP
FUMES
at their
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You'll find Ruemelin Fume Collectors ideal for stopping noxious welding fumes at their source. Counter-balanced inlet hood stays in working area, automatically. Improves working conditions . . . lessens fatigue . . . paves the way for increased plant production. Thousands in everyday service. Write for Fume Collector Bulletin No. 37E.
(Left) "Illustrating the 15 ft. reach collector. Handles large or small work. Units available with 15 ft., 17 ft. and 20 ft. reach."

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The B & J Safety Friction Wrench releases instantly and requires only slightest pressure on handle to operate . . . and it can be positioned in a matter of seconds. Its conical head turns inside two shoes so handle cannot spring up and injure workers.

The B & J Safety Friction Wrench is simple in design, strong in construction to give years of durable, trouble-free service—no springs, bolts or ball bearings to cause trouble; no panels or triggers to catch. Fits 2" square of door-opening gear. Special sockets available for other sizes.

See for yourself how the B & J Wrench cuts car unloading time. You won't be disappointed—order one today.

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DEPT. N-S-1-56 COLUMBUS, NEBRASKA

Phenols from Bonfires May Be Health Hazard

A ONE-YEAR research project of the independent Air Pollution Foundation, conducted by Battelle Memorial Institute in Columbus, Ohio, points the finger at an air contaminant which may not be a contributor to smog, but could be injurious to health.

That suspect is phenol, of which carbolic acid is representative. A study of emissions from typical backyard burners shows that for every ton of rubbish burned, more than eight pounds of the emissions are these phenols.

Dr. W. L. Faith, vice-president and chief engineer of the foundation, said, "It's interesting to note that last year's aerometric survey (conducted by the foundation for the County of Los Angeles) showed that phenol constituents in the atmosphere were higher in Pasadena than elsewhere in the Basin. Furthermore, the only source of phenols that we know of is the burning of rubbish."

Battelle, a leading, internationally-known laboratory, reports that aldehydes, such as formaldehyde, appeared in concentrations of from five to 64 pounds per ton of rubbish burned.

"The aerometric survey also showed that when the incinerators were operating, there were higher concentrations of aldehydes in our air," said Dr. Faith.

The wide range of concentrations is due to the poor burning characteristics of the backyard incinerator.

Hydrocarbons appeared in a range of 44 to 293 pounds per ton.

Hydrocarbons and aldehydes are suspects in the formation of eye irritants in the Los Angeles atmosphere.

Methanol (wood alcohol) was measured in amounts of nine to 23 pounds per ton.

Various other organic chemicals were present. The total emissions of all air pollutants, excluding carbon monoxide, was in the range of 32 to 407 pounds per ton of burned refuse.

Carbon monoxide, not considered a contributor to the smog problem, was present in the range of 197 to 990 pounds. No analysis was made of particles forming visible smoke.

Showmanship

—From page 4

the program, the wheel was spun to select a question for discussion by either a member of the panel or by delegates in the audience. Those in the audience who made significant contributions to the discussion were presented with a cigar. The "barker" kept the discussion moving by asking for new spins of the wheel as each question was answered.

Here are some of the questions tossed out:

May I see, by a show of hands in the audience, how many companies now pay the complete cost of prescription-ground safety goggles for their employees?

Some people have devised their own method of recording accident figures and ignore or condemn the *ASA Code Z16.1*. Will some member of the panel comment on this attitude and action?

While walking backward with an electric transport truck, a shear operator failed to notice a flattop truck loaded with sheet steel standing in the aisle adjacent to the shear, and backed into it. He was forced to a sitting position on the steel truck and the transport truck struck both of his legs and feet. What measure could have been taken to prevent this accident?

How do you discipline employees for safety violations, and how can you effect such discipline without trouble if you have a union shop?

The novelty of the setup kept audience interest and participation up to the level that Program Chairman Prange hoped for, yet did not distract from the subject matter.

Bring Them Back to You

Jack Foley, rotary pressroom foreman at R. R. Donnelley & Sons Co., Chicago, uses some aluminum-mounted pennies to help jolt the audience of a safety meeting wide-awake.

Jack tapes the pennies to the underside of the chairs before the audience comes in. If interest begins to flag, he says, "On your feet." What follows is a demonstration of how *not* to give instructions. With his audience standing, wondering what comes next, he says, "Face the wall." Naturally, half the audience faces each other.

Jack has a routine of these am-

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CIGARETTES, CIGARS, MATCHES IMMEDIATELY EXTINGUISHED
Like 60% of the leading U.S. industries, you, too, will find that safe and economical SIPCO Dunking Stations prevent fires — promote good housekeeping on the job. No smoldering — no fire hazards! Built specifically for hard industrial use, and abuse, and will last a lifetime.
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UNIT No. 1 — Heavy cast aluminum canister, attractive metal sign, upright heavy weighted base. 42" high, wt. 25 lbs.
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Pan returns surplus liquid to drum
TOKHEIM DOUBLE-ACTION HAND PUMPS
You can stop dangerous handling of liquids with Tokheim high vacuum pumps. Their use in maintenance work will help prevent spilling, slopping, over-filling and dripping—all enemies of safety. This means your plant can be kept cleaner—work is speeded—waste halted—accidents prevented.
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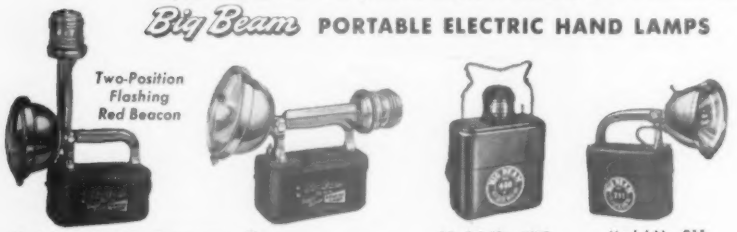
The Hazards of Sudden Blackouts

Big Beam Model 2ATW with storage battery and built-in charger that keeps battery fully charged at all times. Variety of models to choose from.

Sudden blackouts breed confusion, panic, property damage, bodily injury — even loss of life. You can have completely dependable protection against sudden blackouts by installing Big Beam automatic emergency lights. (Plug into any convenient lighting outlet.) Then whenever regular lights fail, your Big Beam will provide hours of bright, safe illumination.

Big Beam PORTABLE ELECTRIC HAND LAMPS



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We sweat it out to make sure there'll be few rejects. But we don't mind, just so we get cool water when we want it. We know we can . . . we've got Halsey Taylors."

Whether it's a foundry or a steel mill, a fabricating shop or a textile plant, Halsey Taylor Coolers contribute to production efficiency. Day in and day out they provide a plentiful supply of cool, refreshing water . . . unfailingly! The Halsey W. Taylor Co., Warren, Ohio.

• At left—cooler with stainless steel top
• Below—remote type cooler

SEE OUR CATALOG IN SWEET'S

F-61

HALSEY TAYLOR

Industry's Favorite Coolers

biguous commands such as, "Hand on the opposite knee," that can be carried out to whatever limit the situation seems to call for. The lesson is wordless, and the last trace of sting is taken out when Jack asks the audience to reach under their chairs.

It takes just a few seconds for everyone to find the penny and read the message: "Good luck safety penny—play safe—you had to get off your fanny to earn it."

Jack finds that the stretch-laugh routine snaps tired listeners to attention, and relaxes them, too.

Spin for Safety

Jim Amos of the Nashville plant of the Ralston Purina Company wanted to increase traffic at the sign which tallied the day-to-day safety record.

The sign was painted on a sheet of ⅝-in. plywood, 4 by 8 ft. In the center of the panel a plywood disc two feet in diameter was mounted. The disc spun on a center bearing.

The face of the disc was painted with red and white checkers (the company trade-mark) with a checker for each employee. Clock numbers were painted on the checkers.

Each day, if there were no disabling injuries the previous day, an employee was chosen to throw a dart at the spinning wheel. The employee whose clock number was hit by the dart won a silver dollar. The dollar-a-day investment paid off in heightened employee interest in the month-long campaign.

Congress Quotes

—*From page 64*

20,000 tons. They're capable of being moved at speeds up to eight miles per hour upstream.

The riverman hasn't been forgotten in all these improvements. Such conveniences as lounges, air conditioning, and even television have been built into river craft for the crew's comfort.

All of these changes—and a good many more—have been necessary to meet constantly increasing competition.

—*Capt. D. L. Steele, General Operating Manager, Federal Barge Lines. (Marine)*

How Do You Rate?

Husbands are lousy teachers of auto driving!

Reasons for this opinion are based on a study in which tape recordings were made of actual driving lessons. Some of the reasons were:

1. The untrained hubby does not realize that the training auto must be under control at all times. This is difficult even with dual-controls—much more so with the family car.

2. Husbands give plenty of advice, but not specific directions far enough in advance for the wife to take proper action.

3. Husbands assume that the wife knows more about steering and controlling speed than she actually does at the beginning.

4. Husbands allow their wives to drive too fast while learning, although they have little idea of how to spot a dangerous situation or how hard to press the brake pedal to slow down or stop.

5. Husbands don't know all the things that must be taught, beyond mere manipulation of the car, which makes a safe and skillful driver.

6. Husbands don't show them how—just tell them how.

7. Husbands don't give enough instruction before starting the engine on laws, mechanical functions, principles of force, recognizing hazardous situations, etc.

—*Alfred L. Moseley, Consulting Psychologist, American Mutual Liability Insurance Co. (School and College)*

Gas-Freeing Tanks

The hazards of tankships carrying petroleum are never over because once their flammable cargoes are unloaded safely, a remaining hazard of explosive vapors in the tanks must still be overcome.

A new method of gas-freeing tanks minimizes chances of vapor dangers to ship and personnel. The procedure consists of these four steps:

1. Machine wash the tank with cold sea water for approximately 30 to 60 minutes.

2. Apply a blower to the tank for 30 minutes.

3. Check the atmosphere of the tank with an explosimeter to make sure it's cleared.

4. Clean out the sediment in the tank.

—*C. M. Lynch, Safety Manager, Marine Dept., Sinclair Refining Co. (Marine)*

Railroad Safety

American railroads had one of their safest years in 1954. Passenger fatalities were reduced to 21 during the year. This was at the rate of .07 per 100 million passenger-miles, a reduction of 50 per cent from 1953. Injuries to passengers decreased 12 per cent in the same period.

Employee fatalities dropped 32 per cent under a previous low established in 1953.

—*Carroll R. Harding, President, The Pullman Co. (Railroad)*

Wet Rock Dusting

A mechanized system of making mud pies is helping to lick a problem inherent in modern, high-speed coal mining.

One of the problems of mechanical, continuous coal mining is that dry rock dust, used to reduce the explosive characteristics of coal dust in mines, interferes with the visibility of men working on the return side of the air current. Therefore, a method has been worked out which involves mixing dry dust and water in a nozzle and applying it on ribs and roof in a soupy form.

One of the biggest advantages of wet rock dusting in case of an explosion is that approximately

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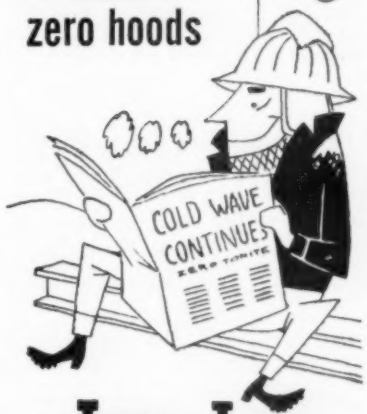
Safety Designed...

with comfort in mind!

time for

McDonald zero hoods



for **T-CAP** *or* **T-HAT**

ZERO HOOD—Head and ear style as shown in top photos or full head-ear-neck style as above. Really keeps cold out. 2 sizes, medium or large.

WINTER LINING—Makes the "T" hat comfortable in the coldest weather. Fleece-lined—easily interchangeable with regular headband.

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Safety FROM HEAD TO FOOT

Manufacturers & Distributors of Industrial Safety Equipment

5721 WEST 96th ST., LOS ANGELES 45, CALIF.
Other Offices in San Francisco and Houston

Please send information and prices on ZERO HOODS.

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seven times more wet dust adheres to the roof than dry dust.

—Wayne D. Snell, Coal Operating Div., U. S. Steel Corp. (Coal Mining)

Are They Happy?

Happy employees are the safest and best workers.

Employers should select individuals who are emotionally well-adjusted so that they'll gain satisfaction from their jobs. This is a big order, since human nature is difficult to catalog accurately.

The second part of good morale building is management's attitude toward its employees. Supervisors must be selected and trained to use methods and express attitudes which reduce emotional maladjustment in workers.

Put another way, we might conclude that efficiency and safety are by-products of high morale. High morale comes from taking a sincere, genuine interest in your people.

—Otis K. McMahon, Rohrer, Hibler & Replogle. (Textile)

A Business Tool

There have been some changes made in management's attitude toward accident prevention.

The attitude now is to view accident prevention as a business tool. By cutting costs through lower insurance rates and reduced accident costs, a good safety record can improve a company's competitive position. In addition, safety is also good public relations. Thus, it can help ease personnel recruiting problems.

The top executive must get into the act to the extent of establishing and implementing the policy that safety is the first consideration in all phases of the business.

—A. A. Porter, Vice-President, American Bridge Div., U. S. Steel Corp. (Construction)

The Inspector Can Help

Safety inspections in factories are useless unless they're accepted in the right spirit.

Safety guards are neglected in many factories until the grapevine warns that the inspector is coming. A constructive attitude should be taken toward inspections. Problems should be put before the inspector who may very well have a solution.

Your inspection service can only be as good as you make it.

—H. Mabson, Chief Inspector, Industrial Accident Prevention Associations. (Wood Products)

Automatic Controls

The best safety device may be about nine inches above a man's shoulders, but there is no substitute for properly designed automatic controls for the use of fuel gases.

All gases used in industry have different characteristics but they have one thing in common: They will burn, and under certain conditions, they become an explosive hazard.

To avoid those conditions, there

PLAQUES, TROPHIES, EMBLEMS

for your SAFETY PROGRAM

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1933 SERIES is available in over 40 titles. ¼" dia., hard glazed enamel, heavily gold plated pin and safety lock catch. $10.50 per doz. F.E.T.

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Our film badge service furnishes weekly exposure reports covering each individual. Besides aiding employee safety, our service provides maximum legal protection to your firm.

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"A Professional Service for Radiation Safety"

are such devices as shut-off valves, combustion safeguards, pressure switches and temperature controls. Controls must give complete protection. Partial protection is worse than none at all because they give humans a false sense of security.

—F. B. Bevelheimer, Ford Motor Co. (Metals)

Automation in the Foundry

The pop-up toaster principle is now going into the metal foundry.

According to predictions, we will be using somewhere around two and one-half times as many castings in 1975 as we are using in 1955—this fairly lush year in the foundry business.

Since the working force is not keeping pace with population and business growth, foundries must depend on mechanical devices to replace the hard manual labor connected with its operations. The average foundry is spending $380,000 this year for automatic equipment.

—G. W. Merrefield, Giffels & Vallet, Inc. (Metals)

Underground Communications

Electronics is now going underground, increasing safety and efficiency in metal and coal mines.

The big advantage of electronics for underground communications is that no wired connections are needed. Two-way communication systems have been developed and are being used which are battery-powered and operate on an inductive radio frequency carrier. The systems use hoist cables, transportation rails, existing power circuits, telephone lines, or a single carrier wire for transmission of impulses.

—Earl A. Berry, Mine Safety Appliances Co. (Mining)

Was It an Accident?

A "close shave" is a warning to act safely in the future.

All of us have been involved in innumerable accidents where we escaped with no injury, so we begin to feel we are safe.

The chain of events in a narrow escape is just the same as in an injury accident, but most people fail to make this connection.

We feel that because we have not been hurt, we have not really had an accident.

—Charles W. Suggs, Safety Coordinator, Sonoco Products Co. (Pulp and Paper)

Four Points

Safe handling of materials to our mills, product in process and finished paper from the paper mills involve four major aspects:

1. Training of employees.
2. Adequate tools — handling equipment of sufficient load-carrying capacity, properly used and well-maintained.
3. Proper storage facilities.
4. Careful adherence to and supervision of all safety rules.

—Kenneth G. Gallinger, Assistant General Foreman, Paper Mills Div., Eastman Kodak Co. (Pulp & Paper)

Keep It Simple

Safety education on electrical hazards should be along lines of practical instruction in accident prevention. The main thing is not to allow talks and meetings to drift off into electrical theory.

At the outset of this plan of education we developed a method of talking straight to the employees in lay terms—no ohms, no amps, no volts.

—James L. McGregor, Safety Engineer, St. Joseph Lead Co. (Mining)

Handling Mining Materials

Modern materials-handling methods have come into the mining industry with great success.

Our company mine handles about 2,400,000 board feet of "lagging" and sawed timber and 275,000 lineal feet of "stulls" per year. Six separate handling operations are necessary to move this lumber to locations where it is used.

Fork trucks, cranes, straddle trucks, electric car loaders and monorail equipment are some of the devices which have been successfully introduced to solve the problem. Timber is banded and palletized so that it can be handled mechanically.

—Philip Lindstrom, Assistant Chief Engineer, Hecla Mining Co. (Mining)

Poisons Aren't Selective

Bugs aren't the only ones in

STOP ATHLETE'S FOOT

OVER 70%
of the largest manufacturers
USE ŌNOX®
SKIN - TOUGHENER
in shower rooms!

✔ BUILDS RESISTANCE
Main cause of Athlete's Foot is Shoe-Softened Skin (U. S. P. H. S. Bul. R-674). Ōnox toughens soft skin and makes it resistant to fungus attack.

✔ EASY TO MAINTAIN
No splash — no mess — no waste. Nothing to get out of order. No testing of solution needed.

✔ ECONOMICAL
One mat serves 50 bathers per shift. One gallon Ōnox serves 50 daily bathers one month. Average cost—1¢ per man per week.

TRIAL OFFER
Order what you need. Use it for 60 days. Pay nothing unless fully satisfied.

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DEPT. S, 125 SECOND STREET
SAN FRANCISCO 5, CALIFORNIA
Warehouses: BROOKLYN, CLEVELAND, NEW ORLEANS, HAWTHORNE, CALIF.

Have you any HOT FOODS to move today!

PORTABLE
AERVOID
REG. U. S. PAT. OFF.
Vacuum Insulated
HOT FOOD, SOUP and COFFEE CARRIERS
BEGIN WHERE COOKING KETTLES AND COFFEE URNS LEAVE OFF

When you have hot foods, hot soup, hot coffee to be serviced a distance from your kitchens . . . THAT'S WHERE PORTABLE AerVoiD VACUUM INSULATED HOT FOOD AND LIQUID CARRIERS COME IN.

AerVoiDs begin where cooking kettles and coffee urns, leave off. They provide a means by which the output of stationary cooking equipment can readily be transported and serviced at points distant from your kitchens . . . expediting service, saving time, money, labor.

AerVoiDs cost but a fraction of the cost of urns, steam tables, cooking kettles. Made of stainless steel, sanitary, high vacuum insulation (exclusive with AerVoiDs) that insures thermal efficiency to keep foods hot for servicing even miles from a central kitchen and with high retention of all the essential food elements and flavors as demonstrated by laboratory tests.

Not being anchored to one location, portable AerVoiDs open up immense new possibilities in expediting mass feeding. The only "complete line" of portable hot food servicing equipment on the market . . . sizes and types to feed thousands or just a few.

Experienced mass feeding consultants to help you without cost.

Write for illustrated price list N-54 Compare. See how much less portable AerVoiDs cost . . . how much you can save.

VACUUM CAN COMPANY
19 SOUTH HOYNE AVENUE
CHICAGO 12, ILLINOIS

danger from poisonous pesticides. Workers mixing and packaging them are constantly facing a hazard, too.

The principal problem related specifically to insecticide-fertilizer mixtures is that of personnel protection. Toxic materials involved affect humans much the same as they do the insects they're designed to destroy.

Even with the best protection, workers should not be exposed to the toxic materials for any great length of time. Continued exposure increases considerably the chance of serious contamination.

—R. P. Henry, Willson Products, Inc. (Fertilizer)

Safety Demoted

The slogan, "Safety First," I believe, was introduced by the National Safety Council some 40 years ago, but it seems to be losing its significance. Why? Because safety has had to take a back seat in industry to production and costs.

There are many reasons why safety must be first but the most important one is that everything deals with human beings. They are therefore first, and any program of production, costs, safety, or anything else follows.

—B. J. Phillips, Safety Director, Coronet Phosphate Co. (Fertilizer)

Don't Paint That Ladder

A coat of paint on a ladder can hide defects that might later result in an accident.

Wood ladders, except for certain specialty types, are sold in an unpainted or unfinished condition. In this condition the ladder parts can readily be checked for cross grain, compression failures, and quality of wood. A transparent finish such as varnish, shellac, or clear preservative is recommended. With such finishes the ladder can be inspected from time to time as readily as if left unfinished.

Some do's and don'ts for proper ladder use are:

1. Select the proper type of ladder for the job.

2. Place the ladder properly to reach the desired height. Distance from base of ladder to wall should be one fourth the length of the ladder.

Bashlin's
30 Years of Quality...
STANDARD OF SELECTION
FOR Safety

For safety wherever it is necessary to raise a man vertically through a small opening . . . Bashlin's Highest Quality Cotton or Nylon Web Manhole Harness. Will fit any normal size man.

One of the complete Bashlin line of Industrial Safety Belts and Harnesses exactly suited to your needs. The Bashlin line also includes complete safety equipment for linemen.

You Can't Afford Anything LESS Than the BEST—
Buy BASHLIN
Highest Quality For Over 30 Years
Distributors in Strategic Areas in U.S.A.
EXPORT: Copperweld Steel International Co.
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Ask for . . .
CATALOG NO. 54-S

W. M. BASHLIN CO.
GROVE CITY, PA.

Safe, secure two, four, or six man carry with new stretcher

Here's another use for the versatile new Haggard's all-purpose stretcher kit. No matter what type of stretcher you now have, you have need for the new Haggard. It does all the things any stretcher can do, plus many more. It is a complete unit ready for instant use anywhere. It is so compact that it fits into a car trunk. Lightweight, only 28½ pounds complete with case, blanket, first aid supplies, and accessories. It's such a totally new concept in utility, versatility and practicality that you should investigate it at once. See how easy it is to store, transport, and put to use. See all the advanced, needed features that make it a combination litter, fracture board, traction splint, and resuscitator. Compact, convenient, complete. Ask your MSco distributor for a demonstration or write Medical Supply Company, Rockford, Illinois. In Canada, Safety Supply Company, Toronto 2.

You Can't Fall
IT'S A LIFE SAVER

It locks automatically—instantly—holds.

SAFETY DEVICE FOR LADDERS

Prevents death and injuries from falling.

Inexpensive. Easy to install. Clamps to any rung ladders, peg ladders, pole or frame. No welding or cutting.
Automatic: Positive. Will catch workman if he starts to fall even if unconscious.
Simple to operate: No upkeep. Requires no attention from climber.
Notched rail **hot dipped galvanized.** Entire equipment rust and corrosion proof.
In use throughout country and abroad for approx. 6 years.

Patented. Manufactured only by

SAFETY TOWER LADDER CO.
1024 Burbank Blvd. P.O. Box 1052
BURBANK, CALIFORNIA

3. Make sure the feet of ladder are firmly supported.
4. Always face the ladder when ascending or descending.
5. Whenever possible, use both hands in climbing.
6. Do not hurry when going up or down a ladder.
7. Be careful not to lean too far over to one side.
8. Do not overload the ladder.
9. Do not abuse a ladder by letting it fall.
10. Inspect ladders periodically after service use.

—*L. J. Markwardt, Forest Products Laboratory. (Federal Safety)*

Announce Course in Nuclear Engineering

LEWIS L. STRAUSS, chairman of the Atomic Energy Commission, and Alan T. Waterman, director of the National Science Foundation, have announced joint sponsorship with the American Society of Engineering Education of a special Summer Institute on Nuclear Engineering for engineering college faculty members.

The AEC has approved use of the Argonne Laboratory School of Nuclear Science and Engineering for the institute which will be of two months' duration, beginning the latter part of June 1956. Courses will be given in nuclear physics, nuclear engineering, metallurgy, instrumentation, and other subjects. Sixty students will be enrolled.

The National Science Foundation has approved establishment of a fund to provide cost-of-living stipends of about $600 to those attending the institute and to defray their travel expenses. These funds will be administered by Northwestern University.

Purpose of the institute is to broaden the educational base of the nation in atomic energy by equipping more college faculty members to teach students of nuclear sciences.

Inquiries concerning enrollment in the institute may be addressed to the Dean of Engineering, Northwestern University, Evanston, Ill.

Traffic SAFETY MIRROR
• Eliminate traffic accidents at blind corners inside and outside your plant —also at loading platforms.
• Traffic Safety Mirrors are available in convex or flat glass.
• Mirrors are easily installed and adjustable
WRITE FOR FOLDER and PRICES
ROUND CONVEX MIRROR SIZES
13" • 18"
26" • 36"
FLAT RECTANGLE MIRROR SIZES
6" x 14"
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SILVER TROY Company
Mfgrs. of Specialty Mirrors for Industrial Use
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On-The-Spot FIRST AID
. . . when it counts
PAC-KIT®

Instantly avails supplies and accessories for emergency care of burns, cuts, bruises, lacerations, superficial eye injuries, uncontrolled bleeding, fainting, fractures and allied injuries common to industry.

PAC-KITS are indispensable where shops lack medical facilities.

Average fellow worker can instantly apply any of the various replaceable items contained in the heavy-duty dustproof, moistureproof cabinet.

WRITE TODAY for description of 4 available sizes and prices.

The PAC-KIT Company
P. O. Box 1306 Greenwich, Conn.

Self-Powered
COMBINATION SCRUBBER-VAC
Cleans Vast-Area Floors "By the Mile"

Oxy-Catalyst Monoxide Eliminator and Powder Dispenser are accessories

- **Cleans up to 16,000 sq. ft. per hour!**
- **Applies the cleanser, scrubs, and picks up—*all in one operation***
- **Mounts a SELF-STARTING gasoline engine**

This *all-in-one* cleaning unit, *Finnell's 218G,* is indeed the answer to today's need for increasing output per man-hour on vast-area scrubbing. *The 218G completely mechanizes scrubbing* — applies the cleanser, scrubs, and picks up — *all in one operation!* Independence from power lines permits the machine to go wherever the operator guides it . . . working in and out of production areas with ease . . . *scrubbing continuously.* Thus the *218G* is capable of cleaning up to 16,000 sq. ft. per hour!

Maintenance men appreciate the labor-saving features of this unit. The gasoline engine starts quickly and easily by pressing the starter button (eliminates rope-pulling). And there are no switches to set for *fast* or *slow*—slight pressure of the hand on clutch lever adjusts speed to desired rate (up to 136 ft. per minute). Two 18-inch brushes give a 36-inch scrubbing surface. *One engine* (2 cyl., 4 cycle, 9.4 hp., air-cooled) operates all working parts. The powerful vac performs quietly. Gasoline only is used for fuel — no mixing required. *Finnell* also offers this type of machine in a smaller size *(215G-2)* with two 15-inch brushes.

Whatever the area of your floors, find out what *you* would save with a *Combination Scrubber-Vac. Finnell* makes a full range of sizes, including *electric* as well as *gasoline* models. It's also good to know that a *Finnell Floor Specialist and Engineer is nearby* to help train your maintenance operators in the proper use of *Finnell Equipment* and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2201 East St., Elkhart, Ind. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.
Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

BRANCHES IN ALL PRINCIPAL CITIES

See the Finnell Exhibit • PLANT MAINTENANCE and ENGINEERING SHOW • Philadelphia • January 23-26 • *Space 1501*

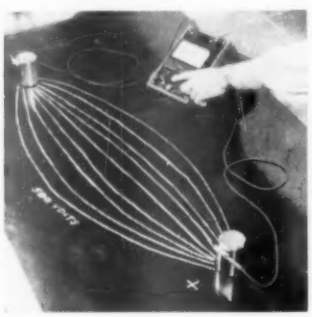
NEW SAFETY EQUIPMENT

Further information on these new products may be obtained by writing direct to the manufacturer or by circling the corresponding item number on the Reader Service Postcard.

Conductive Wax

According to the manufacturer, these are the first conductive waxes to be approved by Underwriters' Laboratories. Wherever static electricity is a danger and conductive floors have been installed, it is necessary to maintain the floors with a wax that is also conductive.

VC-2C conductive wax is a clear wax for use on all conductive floorings. H-22 is a black wax designed for static-conductive linoleum, rubber and other conductive floors which are black. Both produce a durable, water-resistant surface and may be polished to a high luster. It is said that tests have proved that they maintain their conductivity for a long period of time.



In the UL tests these waxes retained a safe electrical resistance after many days of washing with Spal Concentrate. This is an all-purpose cleaner that contains no soap and cleans floors, walls, woodwork, metal, leather and plastic.

To be safe conductive flooring should have a resistance between 25,000 and 1,000,000 ohms. Floors should be tested routinely with a conductometer as shown in the illustration.

Huntington Laboratories, Huntington, Ind. (Item 1)

Air Compressor

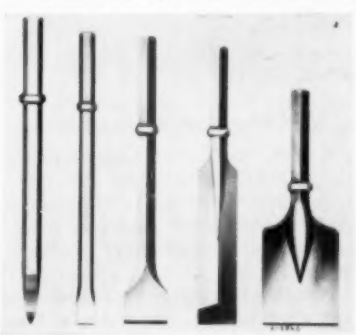
An air compressor designed for fire departments using fresh air breathing equipment for fire-fighting and rescue work is portable and will operate on 110-220 volt, 60 cycle current.

The compressor has a capacity of 1.75 cu. ft. per min. of free air and a rated discharge pressure of 3,000 psi. Light and compact, the complete assembly includes compressor, oil filter and moisture separator, self-resealing relief valve, 0-4,000 psi pressure gauge, and an integral 110-220 volt, 60 cycle AC electric motor. Both the compressor and motor are air-cooled.

The Cornelius Co., 550 - 39th Ave., N. E., Minneapolis 21, Minn. (Item 2)

Spark-Resistant Tools

This manufacturer announces a new line of paving breaker, demolition, and digging tools. The tools



are for application in any plant handling such hazardous liquids as gasoline, naphtha, benzine, lacquers, etc., or flammable gases or dusts which could be ignited by a spark.

The tools are forged from a beryllium copper alloy, a material long known for its spark-resisting properties, and used for years in cast tools for safety purposes. The manufacturer claims that tool life is increased over cast tools, and that safety engineers can now get longer tool life combined with safety.

Ingersoll-Rand Co., 11 Broadway, New York 4. (Item 3)

Emergency Lighting Unit

This emergency lighting unit, using a hermetically sealed nickel-cadmium, life-time battery, gives years of service with no maintenance. The unit includes automatic charging facilities which keep the battery fully charged at all times. It turns on automatically if the power fails and rapidly restores full battery energy once power is resumed.

The unit is fully automatic in operation and contains an automatic high and low rate battery charger to rapidly restore full charge in the battery once the emergency lights are used.

It is designed for use in hazardous atmospheres, and will operate efficiently at temperatures from 25° below zero to 145° above zero. Unit-mounted lamp assemblies, or with power supply remotely located for multiple installations are available. AC power cords, terminal boards, switches, and automatic operation are included with the equipment.

Dynaseal Lighting Corp., 5 Hadley St., Cambridge 40, Mass. (Item 4)

Safety Helmet

A new model of the MSA Shockgard safety helmet, designed to give greater protection, has been dielectrically tested at 15,000 volts for one minute, and shows less than eight milliamperes leakage. It withstands 40 ft.-lb. impact tests without losing any of its dielectric strength.

The new model is made from a formulated plastic material in yellow and gray, and has no metal parts. The new helmet is impervious to oil, grease, and most chemicals. It offers effective protection over a large temperature range—25° below and 160° above zero F. According to the manufacturer this helmet meets all of the specifications under Schedule Number AP-1 established by the Edison Electric Institute.

The helmet may be adjusted to fit a full range of head sizes, and winter liners and chin straps are available.

Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh, Pa. (Item 5)

Flashing Flare Beacon

This new flare, Model No. 108-F, features a flashing bulb covered with a red fresnel lens of durable molded plastic. A simple push-button switch starts and stops the light. The flare is powered by a one standard 6-volt lantern battery housed in a sturdy water-proof steel case finished in

red enamel. Battery replacement can be made in a few seconds as there are no wires to connect. The lamp to battery contact is pressure tight. The lenses are also available in blue, green, amber, and clear.

This flare will be useful in emergencies for truckers, contractors, plant protection, etc.

U-C Lite Manufacturing Co., 1050 W. Hubbard St., Chicago 22. (Item 6)

Antiseptic Hand Soap

Platinum Balm, an antiseptic powdered hand soap, contains a graded, safe all-vegetable scrubber particularly formulated for women in industry. It has a high percentage of beaded Ivory soap and a large quantity of emollient which offers protection from chapping in cold weather. In addition, it contains lanolin and hexachlorophene. This helps protect workers against skin infection and helps prevent contamination of materials they handle.

It is available in five-pound boxes, 12 to the case, and 200-pound barrels.

Chemical Corp., 54 Waltham Ave., Springfield, Mass. (Item 7)

Palm-Coated Work Glove

Two new models have been added to this company's line of work gloves. The palm-coated knit wrist

type (illustrated) and a 10-inch band top style, also palm-coated, are designed to allow more than 47 sq. in. of seam-free work surface. The seams are completely eliminated from abrasion points. The compounded plastic coating offers a non-slip satin finish which is said to outwear leather gloves.

The Pioneer Rubber Co., 296 Tiffin Road, Willard, Ohio. (Item 8)

Wet Chemical Extinguishers

A new series of wet chemical portable fire extinguishers includes pressurized and brass container units tested to 500 psia and is approved by Underwriters' Laboratories.

Portable extinguishers in the new wet chemical line includes a 2½-gal. pressure-operated combination extinguisher. Due to its tin-lined, brass container construction, it is non-corrosive and may be charged with either clear water or anti-freeze solution. It has an "on-off" squeeze-type valve with a built-in pressure gauge. Charging pressure is 100 psi.

Other additions to the wet chemical line are 2½ gallon and 5-gallon pump tank-type extinguishers using either stainless steel or copper containers and which may be charged

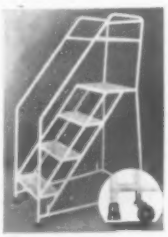
with clear water or anti-freeze. Also new are 1-qt., 1½-qt. and 1-gal. carbon tetrachloride extinguishers and chlorobromomethane extinguishers (CBM) which are pressurized with either air or nitrogen to 150 psi. To avoid accidental discharge all of the pressurized extinguishers have a safety latch.

The containers of the 2½-gal. pressurize-operated water and anti-freeze extinguishers, the 2½-gal. soda and acid extinguishers, the 2½-gal. foam extinguishers, the 1-gal carbon tetrachloride and the 1-gal. CBM extinguishers are of monodome construction which eliminates dome and side seams necessary in constructing stainless steel containers. This eliminates the possibility of seam leakage and provides greater strength. Hose fittings are brass screw machine parts rather than castings or band strips.

Walter Kidde & Co., Inc., Belleville 9, N. J. (Item 9)

Industrial Step Ladder

A line of all-steel, all-welded step ladders for use in industry, office filing departments, assembly floors, etc., is now being offered. The ladders roll on four swivel ball-bearing casters which retract automatically when a person steps on the first step of the ladder. Four large, durable, rubber-tipped feet engage the floor as the casters retract. This construction helps eliminate slipping, rolling, shifting, swaying and tilting.



The ladders are flared 3 in. out each side and 4 in. to the rear to assure stability. In addition, the top step on each model is 12 in. deep for greater safety; and the higher step-ladders are equipped with hand rails. Two types of step construction are available to offer the user dependable, anti-slip protection: Safety-Grip perforated sheet metal or heavy gauge, small diamond expanded metal reinforced beneath with durable steel bars.

All the step ladders are constructed of ⅞ in. O.D. steel pipe and are finished with a long-wearing, rust-resistant paint in aluminum, gray, safety yellow, or metal green.

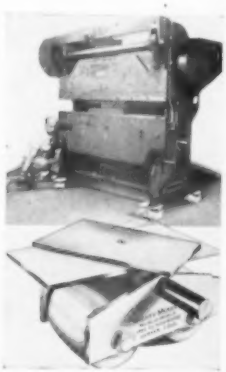
Ladders are available with from one to seven steps and in three standard widths, 18 in., 26 in. and 32 in.

Tri-Metal Co., Box 93, Berwyn, Pa. (Item 10)

Heavy Equipment Mover

Devices that combine safety, economy, and speed in moving bulky, heavy machinery and other equipment, resemble giant roller skates. Called the "Mighty Movers," the device is sold in sets of four, and have a capacity of 90 tons. Each "Mighty Mover" has two 4-in. roller-bearing cast iron wheels, tough steel side plates, and a top swivel plate with a standard ½-in. threaded hole through which machinery is bolted after the machine is raised with a simple jack or fork lift.

The manufacturer says that they are easily and quickly installed, make turns of 90°, work on rough or uneven floors, and eliminate the need of skids, pipes, winches, and cables.



For inner plant moving, width of aisles is governed by the width of machines to be moved so plants need not be disorganized. For loading on or off trucks they roll on simply constructed channel iron tracks.

The "Mighty Movers" are 9 in. overall, 5 in. in width and height, and weigh 40 pounds.

Mighty Mover Co., 1482 S. Milwaukee St., Denver 10, Colo. (Item 11)

Emergency Lights

These new emergency lights are powered by a battery that requires water only once a year. Model No. 100X of the Sentry-Lite is a single lamp model, and covers an area of 5,000 sq. ft. A double lamp model, No. 200X (illustrated), features two lamps and covers a 10,000 sq. ft. area.

The 100X and 200X Sentry-Lites are instant and automatic when power failure occurs during any emergency.

American Optical Co., Safety Division, Southbridge, Mass. (Item 12)

Safety Grating

A safe footing material has been developed for application on transportation equipment. For use on

running boards, fifth wheel dock boards, safety mats on a battery box or a strip for body step or bumper, this grating reduces slippery conditions due to grease and ice coating. The material can be used for a great variety of applications.

Bustin Firm Grip Corp., Dover, N. J. (Item 13)

Exhaust Gas Testing Device

This portable instrument for measuring oxygen and combustibles and exhaust gases is designed to meet the special testing requirements of industries using different kinds of combustion processes. It is built into an aluminum carrying case, 18 in. x 12 in. x 18 in., and weighs only 35 lbs.

Oxygen is measured by catalytic combustion, employing a disposable container of propane. Results are registered on a scale with two ranges—0-5 per cent and 0-21 per cent. Combustibles are measured in a separate cell and are indicated on an individual meter, also with two ranges—0-3 per cent and 1-15 per cent. Both can be read simultaneously.

Instrument Division, Davis Emergency Equipment Co., 55 Halleck St., Newark, N. J. (Item 14)

Information Service

A fire and accident control "Information Service" contains an "Index and Directory" of fire and accident control codes, standards, and references.

The "Index and Directory" was developed to provide a fast and reliable means of locating information desired on accident prevention, fire control and health and sanitation contained in nationally recognized codes and standards and reliable references. It may be used in fire and accident control administration, management, supervision, planning and programming, design and engineering, education and training, examining and testing, inspecting and investigating, lecturing, research, library development, etc.

The "Index and Directory" provides three separate and distinct services. Information on fire and accident control is indexed according to subject matter to quickly provide exact directions as to where information concerning any phase on practically any subject may be found.

The second part of the service constitutes a "Guide" to the many phases of fire and accident control.

Each of the subjects in the index is broken down into sub-topics which suggest the various considerations necessary on the subject as well as preventing actions necessary. The subjects and their sub-topics are extensively cross-referenced for information and convenience.

Also included in the service is a complete "Directory" of publications which are referenced in the "Index and Guide." The "Directory" shows the price and procurement address of essentially all of these publications.

A supplemental service will keep the "Index and Directory" up-to-date every six months.

Loss Control Associates, 629 Oakmont Dr., Plattsmouth, Neb. (Item 15)

"Quick-Opening" Shirts

New "quick-opening" work shirts now are being made by several manufacturers of work clothing. Workmen who have tried them out under various industrial conditions report that they can discard them almost immediately if they get entangled or snagged on moving machinery or equipment, or if they catch fire.

The shirts feature snap fasteners made by this manufacturer. A strong pull on either side of the shirt front causes the snap fasteners to open at once, without the delay that would be required to unbutton the garment.

Scovill Manufacturing Co., 99 Mill St., Waterbury, Conn. (Item 16)

Key Chain Incentive

This safety incentive consists of a stamped disc with incomplete words on each side. When the disc is spun it blends the letters together into a safety slogan "Play it Safe." The company name and address appears on the top piece which holds the spinning disc and the incentive is attached to a key chain. It is designed for launching a safety incentive program to create employee interest or to "pep up" a tired campaign.

The "Spin-O-Gram" contains the words "Please Drop In Mailbox If Found" and the keys will be returned to the company. A numbering system identifies the owner.

They come with registered key tag chains, and a company's own safety slogan can be developed.

Award Incentives, Inc., 200 Williams St., New York 38. (Item 17)

Steel Stamps

"Sur-Grip" is the name of this newly-developed steel hand stamp. Used on the manufacturer's bevel stamps, "Sur-Grip" is produced by the addition of specially-engineered, precise serrations running horizontally across the two sides of the stamps held between the thumb and fingers during the marking operation. This feature correctly positions the fingers at their best points for stress-free secure holding.

Controlled, even-depth marking is made easier, because the stamp cannot slip or fly out of the hand during the marking impact. This stamp also includes the "safe-hed" which prevents mushrooming of the stamp head due to hammer blows.

The stamps are packed in a sturdy plastic bench box designed so that letters and figures are positioned in the holding grid for instant selection and use. A letter or figure of the stamp impression is in full view on the exposed upper portion of each stamp for positive identification.

James H. Matthews & Co., 3750 Forbes St., Pittsburgh 13, Pa. (Item 18)

Cold Cleaners

A new line of Manpro cold cleaners is made up of fast drying, low-toxic and non-flammable cleaners suitable to a variety of metal-cleaning operations.

The No. 20 cleaner is said to be especially suited for machinery wash-down, particularly electrical items, because it is a non-conductor.

The cleaner designated as No. 21 has no flash or fire point and is pointed out as being equally efficient in operations formerly reserved for toxic and flammable solvents in cleaning and degreasing small parts.

For wipe-down on process equipment, the No. 22 cleaner is said to include such advantages as low volatility and low dermatitis incidence.

The No. 23 cold cleaner now being produced is reported as especially suitable for cleaning and degreasing of electric motors, generators, controllers, and other electrical components in enclosed circuits.

For flushing, cleaning, and drying Freon and gas refrigeration systems, the No. 24 cold cleaner is said to offer maximum solvency and safe limits of flammability. It is claimed this material assures moisture displacement. It is being used extensively in paper mills and related industries.

Manufacturers Processing Co., 1360 Hilton Rd., Detroit 20, Mich. (Item 19)

Automatic Fire Detector

This lightweight, automatic fire detector, charged with Freon gas, is listed by Underwriters' Laboratories and has a six to ten minute blast. The model is available with temperature ratings of 136° F. (for use where temperatures do not normally exceed 100° F.) and with a temperature rating of 174° F. (for use where temperatures do not normally exceed 150° F.). It is listed by UL for a 20 ft. by 20 ft. spacing.

The alarm is available with special extensions up to 24 in. to allow the whistle to extend through the wall of a building. The unit is a self-contained fire detection and warning device of the local single-station type. The charge of Freon gas is confined in the cylinder by a pellet of fusible eutectic metal. This fusible pellet is softened by heat and ejected by the gas pressure, allowing compressed gas to activate the piercing whistle alarm.

The unit is guaranteed for 30 years.

Falcon Alarm Co., Inc., 243 Broad St., Summit, N. J. (Item 20)

Featherweight Goggles

A featherweight plastic goggle, designed for workers who dislike wearing protective goggles because of fatigue or eyestrain, weighs one ounce.

The hard-surface acetate lenses offer greater resistance to abrasion, sparks, flying chips, and spatter. The goggles are very useful for woodworking, grinding spot welding, and other jobs requiring eye protection.

They are suitable for wearing over prescription glasses, fit like ordinary eye glasses with the exception that they are roomier and stand out further from the face, allowing greater circulation. The one-piece lens offers full vision, and measures 0.050 in. in thickness. It is available in clear or medium green.

The plastic frame has a smooth contour-molded nose piece and brow rest. The temples are made of plastic-covered cables.

General Scientific Equipment Co., 2700 W. Huntingdon St., Philadelphia 32. (Item 21)

Photoelectric Analyzer

Model III photoelectric analyzer is an instrument for automatically analyzing, recording, and controlling chemical processes involving liquids, vapors, or gases.

Accurate automatic recording over many days, without auxiliary attendance, is possible because of its self-monitoring properties. The analyzer records or controls the process and periodically and automatically checks and re-sets itself to compensate for any smudge accumulation on cell windows or other similar sources of error.

In addition to liquid analysis, the instrument will automatically record quantities down to a few parts per billion, of such substances as mercury, ozone, napthalene, benzaldehyde, nitrobenzene, bromine, sulfurdioxide, xylene and many others. The instrument can be set to give an automatic warning of the presence of noxious vapors in the air or as a system leak detector.

Manufacturers Engineering and Equipment Corp., Hatboro, Pa. (Item 22)

Hospital Warning Device

This unit provides both audible and visual warnings whenever static electricity is present. It is especially designed for use in hospital operating rooms.

The "Staticator" includes all equipment and accessories necessary to protect any size hospital operating room against unsuspected static

hazards. Installation is simple. The use will reduce to a minimum any chance that an unsuspected static condition may cause an explosion or fire in the protected area.

The unit consists of a warning signal, an automatic static counter, and antenna.

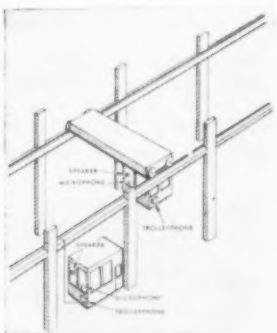
The Hewson Co., Inc., 443 Broad St., Newark 2, N. J. (Item 23)

Trolleyphone System

Two-way conversation between fixed stations and operators of moving equipment without the conventional wiring of a permanent telephone system is possible in this new trolleyphone system.

The units operate on frequency modulated carrier current and derive their energy from existing trolley wires or plant power lines. Communication between crane cab and floor stations in steel mills is a typical use of this system.

The equipment consists of a compact trans-receiver unit, industrial type speaker, and easy-grip microphones. All components of the trans-receiver unit are of plug-in construction and everything except tubes, power resistors and transformer, has been put into 10 can-like sections which are plugged in like tubes. Microphones and speakers plug in also.



The new microphone is particularly suited to industrial application where the level of ambient noise is a factor or where dust and moisture are prevalent. A high-impact-resistant bakelite molding has been designed to fit the hand comfortably. Operators talk in natural voice tones.

Soaking pits and electric furnace cranes, ore bridges, unloaders and transfer cars, coke oven pushers, and hot cars are some of the locations where this industrial communication system may be utilized.

Femco, Inc., Irwin, Pa. (Item 24)

Anti-Biotic Ointment

Americaine with Neomycin, is a topical antiseptic and anti-biotic ointment that simultaneously relieves surface pain and itching and combats infection. The ointment

contains 20 per cent dissolved benzocaine and five mg. neomycin sulfate in a bland, water-soluble, colorless base.

It is for use on burns, wounds, and non-infectious dermatosis, and was developed to solve the dual problem of pain and infection with a single medication. Clinical trials indicate that the product is very useful in burns (flame, steam, hot metal, glass, chemical, etc.), secondarily infected burns, wounds, dermatosis, atopic dermatitis and other skin infections.

Americaine Clear Ointment containing 20 per cent dissolved benzocaine has been used in the medical field for several years. Neomycin has a wide anti-bacterial spectrum, is not absorbed, and does not create resistance in future anti-biotic therapy of a more serious condition.

The product is available in ½ oz. tubes.

Arnar-Stone Laboratories, Inc., 225 E. Prospect Ave., Mount Prospect, Ill. (Item 25)

Explosion-Proof Aircraft Motor

An explosion-proof aircraft electric motor suitable for pump or compressor drive is in production. Designated Type SEV-GA, the motor has undergone explosion-proof

tests in compliance with military specifications. Designed for continuous duty, the motor operates on a 3-phase, 400-cycle, 200-volt alternating current, and delivers 1.5 HP at 1,500 rpm.

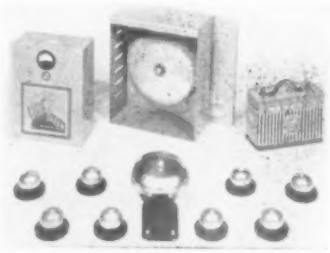
Ruggedly constructed with lightweight material, the motor weighs only 17 pounds. Rigid pyramidal design of base supports the motor and application very effectively with equal distribution on both sides. The maximum operating altitude of the motor is 6,000 ft. A sparkproof fan blows air over rigs to cool the motor.

U. S. Electrical Motors, Inc., Aircraft Division, Box 2058, Terminal Annex, Los Angeles 54. (Item 26)

Fire Alarm System

High protection and ease of installation are two features of a newly-developed fire alarm system.

The manufacturer claims that this packaged fire alarm system includes everything required to positively protect up to 20,000 square feet. (Underwriters' Laboratories spacings.) The system consists of a



heavy-duty control panel with battery testing meter and 9-volt batteries; 6-in. inside alarm; 10-in. outside gong in weather-proof cabinet; 8 combination rate of rise and fixed temperature UL approved detectors.

Fire-Lite Alarm Systems, Inc., New Haven 2, Conn. (Item 27)

No-Fog Cleaning Tissues

These no-fog cleaning tissues can be used on eye glasses, goggles, gas masks, windshields, glass equipment in laboratories, etc.

The tissues are chemically treated and the combination of water and the chemicals have a germicidal effect on eyeglasses and goggles. Designed as a low-cost, practical method of cleaning and preventing fogging of eyeglasses, goggles, gas masks and windshields, the tissues are ready for use as they come in the box. It is necessary to use water only when removing grease from glass. The tissues can be dried and used several times.

Carhoff Co., 11706 Kinsman Rd., Cleveland 20, Ohio. (Item 28)

Plastic Handle Knife

This skinning knife consists of a red plastic insulated handle and a 3 in. high-quality cutlery steel blade. The blade is carefully tem-

pered and the back of the blade is ground flat for scraping. A redesigned bevel of the blade overcomes build-up of insulation when skinning weatherproof insulation. The knife has a ring in the handle for fastening to a snap.

Mathias Klein and Sons, 7200 McCormick Rd., Chicago 45. (Item 29)

Portable Gasoline Drain Tank

A new, flat design, large capacity, portable gasoline drain tank is now available for the safe, convenient emptying of fuel tanks. The tank is of sturdy construction of 16 gauge terne plate, spot welded and soldered, and is 40 in. x 18 in. x 10½ in. It has a capacity of 25 gals. and is painted red to conform with the color requirements for flammable liquid containers.

The tank is mounted on ball-bearing aluminum swivel casters, and a funnel projects above the upper surface at one end. The height permits the tank to be rolled under most types of equipment for quick, convenient use. An Underwriters'

Laboratories approved fire-preventing transfer pump for emptying the tank is mounted at one end and braced from the waist-high handle.

The transfer pump is of special aluminum alloy construction with a brass tube and has 3 flame arresters built into it at the spout. It is equipped with a UL approved static-free 6 ft. hose and operates at a pumping speed of 5 gal. per minute.

The Protectoseal Co., 1920 S. Western Ave., Chicago 8. (Item 30)

Maintenance Ladder

This mechanics' and electricians' ladder, reputed to safely support two workers, is made of wood, and has reinforced steps on the front and sturdy treated-hickory rungs on the back. These ladders have four legs of uniform proportions, rather than two small-sized rear legs. This is said to lend greater stability to one and two man operations.

The ladders are especially adapted for the use of millwrights and electricians, who occasionally work in pairs on the same ladders or climb either side without

moving the ladder. A pail rest can be added.

The features of the ladder include ribbed nails for fastening steps to rails and solid rivets which hold the rust-proof spreaders. The latter are fastened to the rails with a special attachment which prevents gouging and wear, and the wooden step supports are glued to the steps and made an integral part of them before each ladder is assembled.

According to the manufacturer, the ladders meet or exceed all Ohio State and A.S.A. standards. They are available in sizes from 3 to 20 ft.

The Cleveland Ladder Co., Inc., 13921 Aspinwall Ave., Cleveland 10, Ohio. (Item 31)

Metal Floor Covering

The manufacturer reports that "Metal-Flex" will form a non-porous, dust-free, and corrosion-resistant floor. This product extends the life of the floor, and due to the extremely low porosity, destructive materials are held on the surface assuring a long-lasting floor surface and easy cleaning.

"Metal-Flex" withstands rapid changes in temperatures and is said to be oil and grease resistant. This material does not wear or dust as would hard, brittle aggregate.

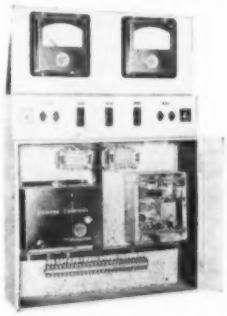
It can be applied to new concrete as soon as the water has disappeared. The amount of conductivity and non-sparking, the type and kind of traffic, and whether corrosive liquids are present determines the quantity of Metal-Flex to be used.

Flexrock Co., 3635 Filbert St., Philadelphia 4. (Item 32)

Panel Control System

These panel control systems offer burner protection and fully automatic operation for commercial-industrial oil, gas, and combination oil/gas burners. Fireye flame failure safeguard, programming control, short-circuit protection, motor starters, fuel selector switches, signals and alarms, are combined in a single, integrated panel unit that is pre-wired and fully tested before leaving the factory.

Optional equipment available in the panel assembly includes sequence draft controls, draft and



temperature indicators, and provision for switching to modulated, fixed-rate firing.

The systems employ the flame-sensitive "Firetron" cell to visually monitor oil-gas flames. The systems automatically safeguard every stage of burner operation; purging, proving the pilot, limiting trial-for-ignition to a safe period, and shutting off fuel within 2 to 4 secs. if flame goes out while firing.

Electronics Corp. of America, Combustion Control Division, 718 Beacon St., Boston, Mass. (Item 33)

Liquid Cleaner

This liquid hand cleaner requires as little as one oz. of cleaner in one gal. of water. The cleaner contains an exclusive synthetic cleaning agent called Ammosene. Ammosene is chemically "locked into" the cleaner and is not marketed separately as an additive. The product

is available in 5, 30 and 55-gal. vinyl plastic-lined drums.

Wyandotte Chemicals Corp., J. B. Ford Division, Wyandotte, Mich. (Item 34)

In-Plant TV System

This wired television system does not use air waves for transmitting its signal. The cameras are connected by coaxial cable to monitors which contain all of the picture controls in the system.

The system is designed for supervising operations in large industrial establishments such as oil refineries, steel mills, etc.

The combinations of inputs and receiving stations may be varied, and cameras situated at four different points may send signals to one or as many receivers as necessary; or a single camera may send its signal to an unlimited number of receivers. Channels 2 to 6 may be used for transmission. The system has an operating range of 500 ft. but by using boosters, a larger range is possible.

The camera is built for heavy service and can be easily moved from place to place, set up and ready for picture transmission almost immediately. It is shock and vibration resistant, weather-proof and water-proof.

Important uses of the camera are plant security maintenance, materials handling, and remote checking of hazardous conditions or operation.

Taller and Cooper, Inc., 75 Front St., Brooklyn 1, N. Y. (Item 35)

NEWS ITEMS

Olin D. Blessing, sales manager of Dow-Corning Corp., has been made a vice-president of the company.

Mr. Blessing was the first full-time employee when Dow-Corning began operations in 1943.

Mr. Blessing joined the Dow Chemical Company following his graduation from Ohio State University in 1930 as a chemist in the main analytical laboratory. He held several positions with this company until Dow-Corning was formed in 1943.

* * *

A new plant at Guin, Ala., was recently dedicated by the Reflective Products Division of Minnesota Mining and Manufacturing Co. The plant is a single-story 60,000 sq. ft. structure of steel frame and block and brick construction, and is fully air conditioned and equipped with the latest machinery to manufacture the company's reflective sheeting.

Ansul Chemical Company, Marinette, Wis., has announced an expansion program consisting of an addition to the company's mechanical manufacturing facilities of the fire equipment division, and new chemical plant buildings for the manufacturers of sodium bisulfate and niacin.

The sodium bisulfate plant is 90 per cent complete, and test runs have been made.

Construction of a combination manufacturing plant and warehouse for the production of niacin should be completed in mid-November.

* * *

The Estwing Manufacturing Co., Rockford, Ill., manufacturer of unbreakable hammers and hatchets, has announced the appointment of David A. Taylor as sales manager.

Until recently Mr. Taylor was merchandising director for a Chicago advertising firm. Prior to that he was hardware sales promotion manager for the Gates Rubber Co.

* * *

Charles L. Foote, president of the H. M. Sawyer and Son Company, manufacturers of protective clothing, rainwear and coated fabrics, has announced the appointment of William A. Reilly to the newly-created post of assistant to the president.

Mr. Reilly is vice-president of the industrial engineering firm of J. Saliba and Associates, Cambridge, Mass. For the past 15 years he has been a consulting industrial and management engineer and has worked extensively with the U. S. Armed Forces.

* * *

The American Ladder Institute has elected Paul Howard, Howard Manufacturing Co., Kent, Wash., as its president.

This national trade association also elected the following officers: Elmo Fay, vice-president; J. K. Halderman, treasurer; W. A. Patterson, secretary; Pat Johnson, trustee; W. A. Flint, Jr., chairman.

* * *

Charles J. Lehneis, Jr., has been appointed district manager for the Buffalo Fire Appliance Corp., Dayton, Ohio. Mr. Lehneis will cover

Pennsylvania, Maryland, Delaware, and the District of Columbia.

He has wide experience in the industrial selling field.

* * *

New stretcher moves injured from normally inaccessible spots

Here's another use for the versatile new Haggard's all-purpose stretcher kit. No matter what type of stretcher you now have, you have need for the new Haggard. It does all the things any stretcher can do, plus many more. It is a complete unit ready for instant use anywhere. It is so compact that it fits into a car trunk. Lightweight, only 28½ pounds complete with case, blanket, first aid supplies, and accessories. It's such a totally new concept in utility, versatility and practicality that you should investigate it at once. See how easy it is to store, transport, and put to use. See all the advanced, needed features that make it a combination litter, fracture board, traction splint, and resuscitator. Compact, convenient, complete. Ask your MSco distributor for a demonstration or write Medical Supply Company, Rockford, Illinois. In Canada, Safety Supply Company, Toronto 2.

James E. Skidmore, general sales manager of Kutol Products Co., Inc., has announced the appointment of John W. Rielley as Chicago divisional manager.

Mr. Rielley has been associated with manufacturers of hand cleaners and allied products for more than 8 years and has had experience in industrial chemicals.

* * *

William W. Ogren has been appointed general sales manager of the Alan Wood Steel Co.'s Penco Metal Products Division. This division manufactures steel lockers, cabinets, and shelving.

He will supervise all sales activity of the division. Prior to his appointment to this position, Mr. Ogren was associated with Lyon Metal Products, Inc.

* * *

Robert T. Scott has been named public relations director for the Fire Equipment Manufacturers' Association, Inc. Mr. Scott comes to his new position from the Westinghouse Electric Corporation's Information Services Department.

Mr. Scott will handle the preparation of educational material on the proper use of the industry's products in first aid and fire protection and will aid in coordinating the association's activities contributed by the industry as a public service.

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ALL RUBBER
ANKLE ACTION
Always Flat at Any Angle

Standard Equipment in
Thousands of Plants everywhere

JOHNSON
LADDER SHOE CO.
EAU CLAIRE, WIS.

Consultation Corner

—From page 60

to go into something new. I assume you have tried various methods of eliminating the vibration of the supported mirrors and have set up a rigid cleaning schedule in an attempt to clean the present mirrors.

There is another solution: an electric control signal light system. This can be broken down into three types of operation.

The first is the automatic signal system similar to regular traffic control lights, using a light fixture containing a red and green prism light. It can be mounted on a wall, hung from the ceiling or mounted on a floor pedestal. The light operates with a timing device which has multiple adjustments for the time length desired for red and green lights. A lift truck comes to the entrance and waits for the signal light to change to green. At the same time the red light is set up automatically for opposite traffic.

Another method is to use the same signal light fixture with the control operated by push-buttons located at the various entrances or at the corner of aisles. The operator approaches the intersection and reaches down and pushes the button which sets the green signal for his direction and the red signal for the opposite direction. The system is arranged so that only one setting will take place in case more than one button is pushed simultaneously.

The third method is to use the same signal light with a pressure-contact device located on the floor (similar to those used in service stations) which sets the signal when a lift truck runs over it. The circuit is arranged so that only one selection is made in the event two trucks operate the pressure device at the same time.

All of these devices can have a bell or alarm set to operate while the lights are changing.

One Diesel engine can draw a bigger load than a thousand horses, but one horse can draw a bigger crowd than a thousand Diesels—if he's the right horse.

EMALFON®
—SINGER'S *Patented** INSULATED GLOVE

A new kind of glove—so different it's patented—ideal on hot jobs that do not exceed 700 degrees. Made with three thicknesses of material: Outer layer of terry cloth, treated to make it flame-resistant; inner layer of all-wool for added insulation; third layer (next to skin) of soft, fleeced cotton. This combination gives flexibility and long wear.

In many cases it has replaced asbestos gloves at a big saving. Fine for extra warm welding jobs.

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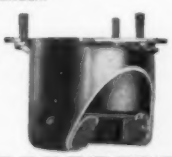
PROTECT OPERATOR AND GUIDE PINS

Effectively guard against injury to operator, die and press on operations where bushings leave the guide pins. Protect pins and bushings from chips and dirt when entire pin and bushing are covered. Inexpensive, easy to attach.

Felt Oiler Ring in top units provides POSITIVE lubrication.



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TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.

1. Facts Folder on Safety Flooring: Folder describes and illustrates various types of treads to which abrasive particles have been securely cast to provide a positive non-slip walking surface. The bulletin includes specifications and shows the materials in use on stairs, thresholds and platforms. **American Abrasive Metals Company, 460 Coit Street, Irvington, New Jersey.**

2. Ear Stopper: How to shut out noise with the SMR ear stopper is described in this bulletin. Soft, comfortable, resilient, the ear stopper adjusts itself to all shapes, turns and movements of the ear canal. **Surgical Mechanical Research, Inc., 1905 Beverly Blvd., Los Angeles 57, Calif.**

3. Interior Fire Fighting Equipment: A new 16-page catalog features a new line of easy-to-install extinguisher cabinets. Also shown are hand fire extinguishers, hose racks, wheeled chemical and CO2 engines, nozzles and system valves and other fire fighting accessories. **Fyr-Fyter Company, 221 Crane St., Dayton, Ohio.**

4. Reach Fork Truck: Bulletin 841 describes a new electric reach fork truck that will reach out and pick up or deposit 3000 pound loads. Actual on-the-job photos show how the truck operates. Complete specifications included. **Raymond Corp., 286-135 Madison St., Greene, N. Y.**

5. Electric Two-Hand Clutch Control: Catalog 65 covers the company's new, improved line of electric two-hand clutch controls for industrial machines. The control equipment shown includes control boxes, hand switches, foot switch, limit switches and lock-out switch; another section covers clutch actuating equipment, including electric solenoids, air cylinders, air valves and air-lube unit, which makes possible the ordering of complete packaged installations. **Micro - Switch, Freeport, Ill.**

6. Storage Tank Venting Fundamentals: Principles of venting flammable liquid storage and process tanks for effective operation, fire protection and low-cost maintenance are completely described in this new booklet. Also included is a section on flame arrester units for safeguarding storage tank fill openings, and safeguarding roddings and sampling operations. Protective devices for the fuel tanks of diesel and gasoline powered industrial equipment are followed by a section devoted to flammable liquid protection in loading and unloading railroad tank cars and tank trucks, and in refueling diesel locomotives. **The Protectoseal Co., 1920 S. Western Ave., Chicago, Ill.**

7. Wire Rope Slings Wall Chart: A wall chart, designed to be displayed in a prominent place in industrial plants—on tool cribs, in rigging departments, near hoists or cranes is available. This chart, for ACCO-Registered Wire Rope Slings, lists diameters and lifting capacities of the Strand-Laid type slings. Wire Rope Sling Dept., **American Chain and Cable Co., Bridgeport 2, Conn.**

8. Chlorinator: The F & P Figure 1050A Chlorinator for purifying water supplies, treating sewage and industrial wastes and for control of slime is illustrated and described in catalog 70-10. **Fischer and Porter Co., 539 Jacksonville Road, Hatboro, Pa.**

9. Materials Handling: A 2-color, 12-page catalog 56G illustrates 49 different models of two wheeled and platform trucks, 12 types of dollies and 15 styles of casters. Application photos and complete specifications included. **Nutting Truck and Caster Co., Faribault, Minn.**

10. Plaster's Jack, Trestle and Mason's Jack: Building trade contractors will be interested in the colorfully illustrated literature on the new Advance plaster's jack and trestle and mason's jack. Both folders contain descriptive information and illustrate applications for the products. **Beaver - Advance Corp., Dept. K, Ellwood City, Pa.**

11. "Asbestos Safety Clothing": A 12-page booklet describes in detail asbestos suits, helmets, aprons, leggings, overshoes and the Wearbestos line of gloves and mittens which are specially treated to increase their resistance to heat, oil, water and abrasion. The booklet also covers safety curtains for auditoriums, theaters and T.V. studios, fire smothering blankets used by fire trucks, safety patrols and commercial truckers. **Johns-Manville, 22 East 40th St., New York 16, N. Y.**

12. Heavy Duty Bar Racks: A new illustrated folder describing the advantages of modern tiering and storing with portable heavy duty bar racks. Tiering and storing racks using automatic tongs suspended from an overhead crane are graphically portrayed. Also shown are the advantages of stock checking when racks are tiered neatly in a minimum of plant storage space, in addition to the ability to store more stock tonnage. **Palmer-Shile Co., 12643 Mansfield, Detroit 27, Mich.**

13. "Space Saver" Magnetic Conveyors: New illustrated eight page bulletin MC-250 describes "Space Savers" magnetic conveyors. The conveyors offer new possibilities for completely automatic handling of ferrous parts and pieces. They convey ferrous parts and pieces up inclines as steep as 90° without need for belt cleats. Conveyors automatically feed machines, stack parts

and perform parts turn-over and other handling operations. **Homer Mfg. Co., Dept. 199, Lima, Ohio.**

14. Wire Rope Slings: Dura-grip wire rope slings are featured in a new bulletin. Special Dura-Grip splice construction develops the full catalog strength of the rope from which the slings are made, and are said to guarantee long sling life and extra safety. Various assemblies for which the slings can be used are illustrated, and a complete listing of dimensions and rated capacities given. **The Colorado Fuel and Iron Corp., 575 Madison Ave., New York, N. Y.**

15. "Magic Wand" Electrostatic Neutralizer Bars: Technical Bulletin No. 126 describes company's "Magic Wand" electrostatic neutralizer bars (induction type), the principle of operation and unique advantages of these neutralizers, how they are mounted on machinery and how they compare with other types of industrial neutralizers such as high-voltage and radioactive types. A distinctive advantage of the "Magic Wand" neutralizer is that it can safely be used where flammable vapors or liquids are present. **Hermon H. Sticht Co., Inc., 27 Park Place, New York, N.Y.**

16. Quick-Seal Couplings: 20-page catalog describes and illustrates company's line of leak-proof quick connect-disconnect hose couplings. Coupling accessories, adaptors to permit coupling hose of different sizes, sealing plugs, protective end caps, etc., are also described and illustrated. **Titeflex, Inc., Industrial Sales, 10 Hendee St., Springfield 4, Mass.**

17. Accident Prevention Signs: 6-page, 2-color jumbo booklet illustrates and describes company's line of accident prevention signs. Specifications, sizes and prices included. **Stonehouse Signs, Inc., 9th at Larimer St., Denver 4, Colo.**

18. Audiometers: Bulletin describes and illustrates three different types of audiometers for testing hearing of employees. Audiometers provide a permanent record of pre-employment hearing losses and through periodic re-testing detect and measure any subsequent losses. **Maico Co., Inc., 21 N. 3rd St., Minneapolis 1, Minn.**

19. "Before Hydraulic Fires Start": See this interesting 16mm, black and white new film available for free showing to your executive staff, plant foreman, safety and fire personnel. "Before Hydraulic Fires Start" will help you impress your own plant personnel with the importance of safety. Filmed in actual manufacturing plants to show you where and how many hydraulic fires start. **Organic Chemicals Division, Monsanto Chemical Co., Box 478-W-8, St. Louis 1, Mo.**

20. Antiseptic Skin Cleanser: A skin cleanser that can be used with or without water for the removal of grease, paint, ink, asphalt as well as grime is described in this folder which points out that the antiseptic and lanolin ingredients help control dermatitis. Several dispensing methods are shown, including washroom units, waterless stations, individual cans, plastic bags for vehicle or outside use. **Dameron Enterprises, Inc., 427 S. 20th St., Louisville 2, Ky.**

21. Non-Shrink Repairs to Concrete Floors: A 7-step procedure for repairing concrete floors with new non-shrink mortar is described in this folder. Product called Embeco Pre-Mixed Mortar is specially designed to produce hard, strong, tough repairs to cracks, holes, ruts, and worn areas of concrete floors, steps, walks, roadways, etc. **Master Builders Co., 7016 Euclid Ave., Cleveland 1, Ohio.**

22. Tower Ladder Safety Device: Folder describing use of tower ladder safety device for workers who climb. Especially adapted for use on derricks, highline towers, radio and television towers or wherever men work at great height. Device consists of belt and locking mechanism. **Safety Tower Ladder Co., P. O. Box 1052, Burbank, Calif.**

23. "Foamite Airfoam Fire Extinguishing Systems": Here's up-to-the-minute data on various aspects of Foamite Airfoam Equipment for fixed piping installations, semi-portable and portable applications. Includes detailed engineering and specification information and diagrammatic drawings of installations. An excellent aid in the study of fire protection for hazards to which airfoam is best suited. **American La France Foamite Corp., Elmira, N. Y.**

24. Plastic-Coated Glove: Various styles of plastic-coated work gloves shown in bulletin may be entirely or partially coated. Specifications given and resistance to abrasion, chemicals, alkalis, oils, and greases noted. **Granet Corp., Framingham, Mass.**

25. Respiratory Protection: This fully illustrated and unusually informative 30-page brochure describes many types of approved filter, cartridge and air line respirators and also accessory devices, such as hoods, goggles and shields. An excellent chart lists various chemical and dust hazards and shows types of respirators that are suitable. Includes section on how to clean equipment. **American Optical Co., Southbridge, Mass.**

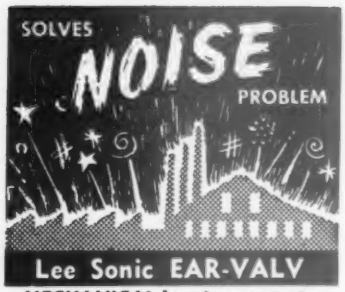
26. "Coolant Filters for Thompson Grinders": Illustrated in this 4-page technical bulletin are four major models of the Thompson line. These units are shown equipped with appropriate Delpark Filters recommended by Thompson engineers. Listed are all Thompson grinder models using wet grinding methods and the recommended Delpark filter for each. **Industrial Filtration Co., Dept. T-331, Lebanon, Ind.**

27. Electronic Fire Detection: A new seven page bulletin contains illustrations, technical data and power information about the two new standard Fireye fire detection systems designed to protect warehouses, large storage of factory areas, airplane hangers, auditoriums, etc. The small system, FD-10A, is used for up to three areas, small or large. The other system, FD-20, designed for up to twenty separate areas, small or large, will protect an area of more than 200,000 square feet. **Fireye Division, Electronics Corp. of America, Cambridge 42, Mass.**

28. Fume Collectors: The complete line of blast cleaning machines, dust filters and welding fume collectors are covered in an 8-page illustrated bulletin 100-A. Application features are included. **Ruemelin Mfg. Co., 3885 N. Palmer St., Milwaukee, Wis.**

29. Seecloth: Literature describes a chemically treated fabric called Seecloth which when rubbed on glass both cleans and prevents fogging or misting. A convenient method for cleaning and preventing the fogging of goggles of workers who must protect their eyes in various industrial operations. Also can be used in preventing misting of the inside of windshields in foggy or damp weather. **Hygiene Research, Inc., 684 Broadway, New York, N. Y.**

30. Protective Clothing: 112 page catalog illustrates and describes head-to-foot protection for industrial workers. Shown are: gloves, aprons, boots, clothing, sleeves, leggings, foot guards, finger guards, respirators, face shields, acid utensils, eye savers, etc. **Dunn Products, 1214 W. Madison St., Chicago, Ill.**



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Products featured in this section have been carefully reviewed by Council engineers so as to bring you only what's new and reliable in the safety field. Only new safety and health products, or newsworthy improvements in existing equipment are eligible for listing.

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Here's a wealth of helpful trade literature—catalogs, spec sheets, booklets, brochures—that will help you compare before you buy. Whether you are in the market now, or think you may be at a later date, you'll want these valuable references in your safety equipment data file.

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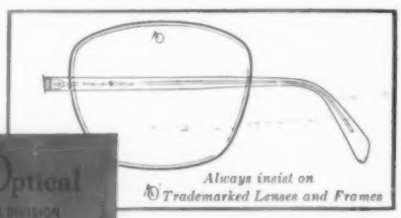

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